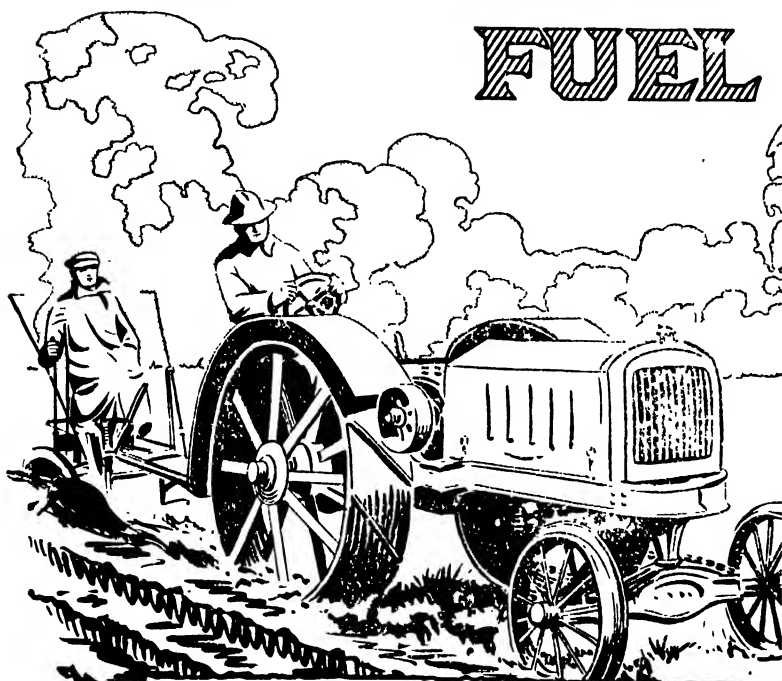




AGRICULTURAL RESEARCH INSTITUTE
PUSA

THE SECRET
OF EFFICIENT
POWER
FARMING

“BP”
FUEL



“T.V.O.”

TRACTOR VAPOURISING
OIL

“P.V.O.”

VAPOURISING OIL FOR
OIL ENGINES

British Petroleum Co. Ltd.

22, FENCHURCH ST, LONDON E.C. 3

Distributing Organization of the
ANGLO-PERSIAN OIL CO. LTD.

Cable Address—"Piggott, London," A B C Code (5th Edition) Telephone—London Wall 4850 (4 lines).

PIGGOTT BROS. & Co., Ltd.

Contractors for upwards of Sixty Years to the Bath and West and Southern Counties Society.

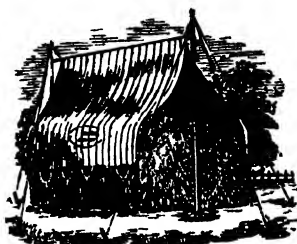
PIGGOTT'S RICK CLOTHS.

All Rick Cloths made up full size.

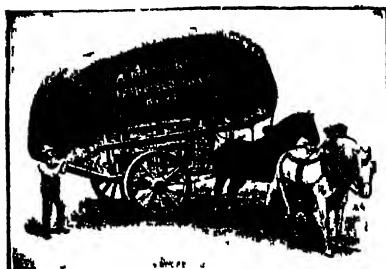
Size.	Heavy Jute Tarpaulin.	Hemp Canvas.	Green or Grey Proofed Canvas.
8x6 yds	\$4 16 0	\$8 12 0	\$7 18 0
8x8 yds	6 8 0	8 16 0	10 8 0
10x8 yds	8 0 0	11 0 0	13 0 0
10x10 yds	10 0 0	13 16 0	16 5 0
12x10 yds	12 0 0	16 0 0	19 10 0

Samples on Application

RICK POLES AND HOISTING TACKLE Prices on application.



Piggott's Tarpaulin and Waterproof Canvas Waggon Covers.



All fitted with strengthening patches, eyelets and best hemp lines. Letterin Tarpaulin and Waggon Sheets 3d per letter.

Best Quality Black Dressed Lin Canvas 9 gft, 31/6 12 gft 42/- 15 gft 52/6 18 12ft, 84 - 18 15ft, 105 - 21 15ft 122 6.

Green Khaki or White Wax Proofed 1st Quality, 9 gft, 29/3 12 gft, 39/- 15 gft, 48/9 18 15ft, 78/- 21 15ft 97/6, 21 15ft 113/9 2nd Quality, 9 gft 24 9 12 gft, 33/- 15 gft 41/3 18 15ft 66 - 21 15ft 82/6, 21 15ft 96 3

HORSE-BOX TRAILERS.



PIGGOTT'S HORSE BOX TRAILER will carry your Hunter easily and safely to distant meets. Overcomes the tarred road trouble. Horse arrives fresh. Any Car of moderate power will tow them.

Price \$128.

Full Particulars on application.

PIGGOTT'S SACKS

Prices subject to Market Fluctuations

CORN SACKS		cwt
8 por 3 lbs 4 bush	27 5	1 8
8 por 4 lbs 4 bush	26 53	2/1
10 por 4 lbs 4 bush	27 14	2/4
10 por 4 lbs 4 bush	27 53	2 8
10 por 4 lbs 4 bush	27 56	2 9

BRAN OR CHAFF BAGS

	cwt
21 oz 8 lb	1/1
26 oz 8 lb	1 4
30 oz 8 lb	1 11

HEMP CART NETS Ordinary Quality.

6 thread 6x5ft, 6/8, 7 1/2 x 5ft	9/2,
8 1/2 ft 6ft	11 -

SPARROW AND RABBIT NETS.

GREENHOUSE SHADING

GARDEN NETTINGS.

Prices on Application.

SURCINGLES 3in to match Rugs, 2/6 4in, 2/9

Piggott's Horse Clothing, Horse Slings, &c —HORSE CLOTHES.

Stout Combination Cloths, Striped or Plain—4ft 9in 15/6 5ft 3ins, 18/9 5ft 6ins, 17/6, 5ft 9in 18/- 6ft, 18/9

220, 222, 224, 226, BISHOPSGATE, LONDON, E.C.

JOURNAL
OF THE
BATH AND WEST AND SOUTHERN COUNTIES
SOCIETY

GARDINER, SONS & Co., Ltd.

Telephone :

No 5640 Private Branch Exchange.

Telegraphic Address :

"GARDSONS, BRISTOL."

Nelson Street,

BRISTOL.



GAS, ACETYLENE and
ELECTRIC LIGHT
FITTINGS.



CHIMNEY PIECES,
GRATES and FENDERS.



FURNISHING
IRONMONGERY.



SHOWROOMS contain one of the
LARGEST SELECTIONS
in the KINGDOM.

Inspection Invited.

KITCHEN RANGES and
COOKING APPLIANCES
of every description.



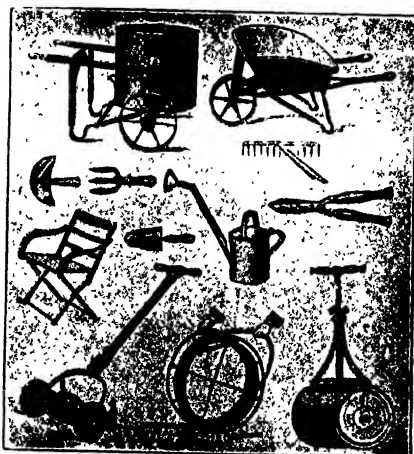
BATHS and
LAVATORY FITTINGS.



GARDEN REQUISITES
of every description.



LAWN MOWERS
of all the leading makes.



Illustrated Price Lists on receipt of requirements.

JOURN
OF THE
BATH AND WEST AND SOUTHERN
COUNTIES SOCIETY

FOR THE
ENCOURAGEMENT OF
AGRICULTURE, ARTS, MANUFACTURES AND COMMERCE.

ESTABLISHED 1777.

FIFTH SERIES.

VOL. XVII.

1922-1923.

WORK AND LEARN.

LONDON:
EDWARD STANFORD, LD., 12 TO 14, LONG ACRE, W.C.2.
1923.

[All rights reserved.]

Price to Non-Members Six Shillings and Ninepence.



PROFESSOR WILLIAM SOMERVILLE, speaking at the Farmers' Club, London, on March 6th, 1922, on the "IMPROVEMENT OF POOR PASTURE," said :—

**“The time to apply
BASIC SLAG
is ANY TIME”**

BUY NOW—SOW NOW

British Basic Slag (ALBERTS' SUCCESSORS) Ltd.

15, PHILPOT LANE :: LONDON, E.C.3.

WORKS:

**Middlesbrough,
South Bank,
Wednesbury,**

**Frodingham,
Brymbo,
Etruria,
Hawarden Bridge.**

**Cradley,
Hollinwood,
Park Gate (Yorks).**

CONTENTS.

VOLUME XVII.—FIFTH SERIES. 1922–1923.

ORIGINAL ARTICLES AND REPORTS.

	PAGE
I. The Law of Property Act By C. B. Marshall.	1
II. The Neglect and Repair of Ancient Cottages By A. R. Powys, A.R.I.B.A.	22
III. Modern Weather Forecasting By S. Leonard Bastin.	30
IV. West Country Orchards and their Possibilities By Prof. B. T. P. Barker.	45
V. Practice with Science in Pig Feeding By Charles Crowther, M.A., Ph.D.	57
VI. The Improvement of Poor Pastures –Progress Report, 1923	71
VII. The Society's Exhibition at Plymouth By F. H. Storr.	76
VIII. The Dairy Department at Plymouth By A. F. Somerville.	81
IX. The Forestry Section at Plymouth By G. Lipscomb.	92
X. Nature Study and Handicrafts By H. M. Cundall, I.S.O., F.S.A.	94
XI. The Exhibition of Cider at Plymouth By E. W. Farwell.	99

	PAGE
XII. Dairy Herds Competition at Plymouth	102
By Jesse Crumpler.	
XIII. Apple Packing Demonstrations at Plymouth	105
By J. Stoddart.	
XIV. Annual Report upon the Society's General Operations ..	106
By F. H. Storr.	
XV. The National Fruit and Cider Institute	110
By B. T. P. Barker, M.A., Director.	
XVI. Report of the Society's Consulting Chemist	218
(Dr. J. A. Voelcker, M.A., F.I.C.).	

APPENDIX.

PLYMOUTH MEETING, 1922.

Judges	i—ii
Awards	iii—ciii

PRIVILEGES, LAWS, OFFICERS, ETC.

Objects of the Society and Privileges of Membership	ciii
Terms of Membership	civ
General Laws	cv
Council and Officers	cviii

List of Annual Exhibitions, 1852—1923	cxiv—cxvi
Privileges of Analyses	cxvii—cxx

SWANSEA MEETING, 1923.

Donors of Money Prizes	cxxi
Judges and List of Prizes for Stock, Produce, etc. ..	cxliii—cxlvi
Conditions and Regulations for ditto	cxlvii—clvi
Judges and Prizes for Poultry	clvii—clix
Conditions and Regulations for ditto	clx—clxii

CONTENTS.

XI

	PAGE
FINANCE.	
Summary of Cash Account to December 31st, 1922 ..	clxiv—clxv
Annual Cash Account	clxvi—clxxv
Assets and Liability Account	clxxvi
Financial Result of Plymouth Show	clxxvii
 List of Members	 clxxviii
INDEX	cexiii

ILLUSTRATIONS.

<i>Neglect and Repair of Ancient Cottages, Plates I.—VI</i>	<i>following page 24</i>
<i>Nature Study and Handicrafts</i>	„ „ 96

JOURNAL OF THE BATH AND WEST AND SOUTHERN COUNTIES SOCIETY.

Original Articles and Reports.

I.—THE LAW OF PROPERTY ACT, 1922.

By C. B. Marshall.

Many owners of land, and it is to be presumed all land agents, make a practice each Autumn of acquiring a working knowledge of the legislation affecting land which has been passed in the just completed Session of Parliament. The task, especially to those who may not be versed in the niceties of legal language or the general plan of construction adopted in Acts of Parliament is at all times a wearying and unpleasant one, and of recent years, owing partly to increased output, partly to the obnoxious system of legislation by reference, and partly to the lack of consolidation, has become increasingly arduous. It has, however, been reserved for the Session of 1922 to add to the Statute Book a measure which by its weight and bulk alone is likely so to impress the landowner or agent at first sight as to cause him to lay it aside until some favourable opportunity arises for studying it or, in other words, indefinitely. Comprising as it does, 313 pages, 11 parts, 191 sections, and 16 schedules, considerable courage is required to tackle the Law of Property Act, 1922, and the reader's natural query is, "What does it do; how important is it, and ought I really to have a general acquaintance with it?" It is the object of this Article to give a general description of the Act and its objects and provisions which may be of some assistance in answering this question, and to do so with the minimum of technicality and detail, although from the

nature of the subject matter, this last object is impossible of complete achievement. Considerations of space alone forbid more than a general survey.

The events leading up to the Act may be shortly summarised as follows: When the Land Transfer Bill (afterwards the Land Transfer Act, 1897) was introduced, another Bill, the Conveyancing Bill, was introduced into Parliament, largely at the instance of the Law Society. This latter Bill proposed that by a classification and regulation of transactions in land, accompanied by a system of registration of cautions, the advantages of the system of land registration might be obtained, without the necessity for a register. In 1913, when an extension of the Land Registry system was proposed, and Lord Haldane, as Lord Chancellor, had introduced into Parliament a Real Property Bill and a Conveyancing Bill (designed mainly for this purpose) the Conveyancing Bill of 1897 was revived in amended form. These Bills were amalgamated and reintroduced as one Bill in 1914, but after the outbreak of war this Bill was not proceeded with. In 1917 a Committee was appointed by the Minister of Reconstruction to consider the acquisition and valuation of land for public purposes, and in 1919, after presenting three Reports, the Committee were re-constituted for the purpose of considering the present position of land transfer in England and Wales, and in order to advise what action should be taken to facilitate and cheapen the transfer of land. The Committee reviewed all the various attempts in recent years at reforming Real Property Law, including the Bills of 1913 and 1914. In their Report they made it clear that in their opinion the main defects in the existing system of Conveyancing did not lie in the Conveyancing Acts or in the practice of Conveyancing, but in the general Law of Real Property. They further stated that they were unanimously of opinion that the existing law of Real Property was archaic and unnecessarily complicated, that no great improvement in the existing systems of transfer of land, whether registered or unregistered, could be effected until the law of Real Property had been radically simplified, and after referring to a pamphlet prepared by the eminent conveyancer, Mr. (now Sir) Arthur Underhill, entitled, "The Line of Least Resistance. An easy but effective method of simplifying the law of Real Property," gave it as their opinion that his proposals afforded the best and simplest remedy to effect the required simplification with as little disturbance as possible. As a result of this Report, the Law of Property Bill was introduced in the Session of 1920, re-introduced in 1921, and again in 1922, and has now passed into Law.

The first crumb of comfort that can be offered (which it is realised may cause many readers of this article who have progressed thus far to lay it down) is the provision of s.191 that the Act shall come into operation on the 1st January, 1925. This date of commencement, however, is now less than two years away; and perseverance is therefore suggested.

The principal object of the Act stated in a few words is to simplify the present practice of Conveyancing and of investigating title to real property.

For many years the desirability of setting up a universal system of land registration whereby all transfers and dealings should be effected on the Register has been a matter of controversy. Strong opposition exists to the universal extension of the system in this country, the present position being that such registration is compulsory only where the land is situated in the County of London. Outside London it can only be introduced compulsorily with the consent or at the instance of the County Council. The Act leaves the matter in its present position for ten years after its commencement, *i.e.*, until 1st January, 1935 (which it may be safely assumed entails that there will be no further extension until after that date) but provides in effect that after that date (subject to preliminary public enquiry and the approval of Parliament and certain other safeguards intended to secure that any extension shall be gradual) an order extending compulsory registration may be made independently of the County Council. In 1925, however, the simplification of the present practice of conveyancing and of transfer by deed without registration intended to be effected by the Act will have become law, and by 1935 will have been ten years in force. The Act, therefore, says in effect to all concerned, "First let us reform the present system of transfer by deed by assimilating as far as possible the law of real and personal property, by abolishing copyhold and other special tenures of land; by abolishing primogeniture and other customary laws of succession on death, by amending the law of intestacy, and by removing other causes of complication and difficulty. Having done this, let the present system as so improved have a trial run of ten years and then, when we see how it works, we can decide with full knowledge and experience whether Universal Compulsory Registration must come. Further, in the process of altering the present law so as to effect the above principal object of the Act, the opportunity has been taken of bringing up to date the Settled Land, Conveyancing, Trustee, and other Acts by effecting such extensions and amendments of them as the experience of years has shown to be desirable. Thus the Act

has to be viewed from two standpoints, viz., from the primary standpoint of setting up a new system of conveyancing, and, secondarily as a measure of the customary "Amendment" type, developing, extending and bringing up to date existing legislation relating to land. It will be convenient to deal with these two aspects of the Act separately and in order.

As regards the first of them, the Act at its outset (Sec. 1) enumerates the estates interests or charges in or over land, which after the commencement of the Act shall be capable of subsisting or of being conveyed or created at law, and labels them as "legal estates." The most important of these are an estate in fee simple absolute in possession and a term of years absolute, but all of them are in their nature either perpetual or of determinate duration. The owner of a "legal estate" is referred to as "an estate owner."

All other estates, interests and charges over land which are not "legal estates" are converted into and are to take effect as "equitable interests" and powers which under the Act are to operate in equity only (*e.g.*, powers of appointment over and powers to convey or charge land, but not being powers vested in a legal mortgagee or chargee by way of legal mortgage) are termed "equitable powers."

Having thus divided interests in land into two classes, the Act repeals the Statute of Uses, the result of which will be to prevent the automatic shifting of legal estates from one person to another. It will follow from this that interests in land of limited or indeterminate duration, such as estates for life or in-tail, will in future take effect only in equity by means of trusts. All devises and bequests will take effect in equity until the executor assents in writing to the land passing to the beneficiary.

Having thus paved the way, the Act proceeds to deal with the difficulty created by the fact that in order to obtain a good title, the purchaser of a legal estate in land has not only to acquire the fee simple or the term of years which he buys, but also to see that all the equities and charges affecting the land are barred. By Section 3 (1) it is provided that a purchaser of a "legal estate" in land shall not be concerned with or affected by any equitable interest or power affecting that land, whether he has notice thereof or not, with certain exceptions next enumerated. These exceptions are :—

- (1) Restrictive covenants, equitable easements, and contracts to convey a legal estate where (if the same were created before the commencement of the Act) the purchaser has

notice of them or where (if created after the commencement of the Act) they have been registered as land charges.

- (2) Equitable interests registered at the Land Registry (*e.g.*, lites pendentes, annuities, wits, orders, deeds of arrangement and land charges).
- (3) Equitable interests protected by a deposit of documents (*e.g.*, mortgages by deposit).
- (4) Equitable interests or powers of which a purchaser has notice except where :—

(a) such equitable interests or powers are over-reached by trustees for sale or by the exercise of the powers conferred by the Settled Land Acts (as amended by the present Act) or the powers enforced by a settlement ;

(b) such equitable interests or powers are barred by an Order of the Court ;

(c) such equitable interests and powers (referred to in the Act as “ equitable interests and powers protected by a trust for sale or a settlement ”) are (by virtue of S.3 (3) of the Act)—

(i) over-reached by trustees for sale, where the legal estate is subject to a trust for sale, the equities attaching to the proceeds of sale, there being at least two trustees or a trust corporation to whom the purchase money is paid ;

(ii) over-reached by a tenant for life of full age or statutory owner where the legal estate is subject to a settlement, the equities taking effect as if limited by the settlement, with the same provision as to the persons, etc., to whom the purchase money is to be paid ;

(iii) over-reached, where the legal estate is not subject to a trust for sale, by the estate owner conveying his estate to two trustees, or to a trust corporation upon trust for sale under which when exercised the equities will attach to the proceeds of sale ; or

(d) any capital money arising from the transaction is paid into Court or at to least two trustees or to a trust corporation.

The object of these provisions (contained in Sec. 3 of the Act which is not beyond reproach in point of drafting) is to reduce to a minimum the number of cases in which a purchaser will be affected by notice, and, consistently with protecting the owners of equitable interests, to facilitate the over-riding of all such interests either (a) by vesting the land in some instances in trustees for sale, (b) by adopting and extending the principle of the Settled Land Acts by which the Conveyance by a person having the power of disposition overrides all the equities subsisting under the Settlement, the equities attaching to the proceeds of sale, or (c) by requiring certain rights affecting the land to be registered and rendering such rights liable to be over-riden if not registered notwithstanding that the purchaser has notice of them.

The practical result of the achievement of this object is found in Section 5, which lays down that where title is shewn to a "legal estate" in land it shall not be deemed necessary to include in the Abstract of Title any instrument relating only to the interests or powers which will be over-reached by the conveyance of the land to which the title is being shown; although it will still be necessary to disclose an equitable interest or power which will not be so over-reached and to furnish an abstract of any instrument creating or affecting the same. In the words of the explanatory Memorandum prefixed to the Act when a Bill in Parliament "The result will be that Abstracts of Title in the future will consist of charges by way of legal mortgage interspersed with vesting Orders vesting declarations leases probates and letters of administration" save that if advantage is not taken of the over-riding powers the equitable interests will be abstracted. On the other hand, however, the Act in various ways discourages the method of making title with the concurrence of persons entitled to equitable interests by empowering the purchaser in certain circumstances to require that title shall be made under the statutory power. The Act contains in the Eighth Schedule Epitomes of Abstracts of Title framed in accordance with its provisions, and by way of object lesson prints in italics those parts of the Epitomes which would to-day be required but which after the Act has come into force will no longer be necessary.

Having got so far, however, the main task is by no means done. Alterations of the present law are required as regards Mortgages whether existing at the commencement of the Act or created thereafter; as regards undivided shares in land; as regards dispositions in trust for sale; as regards settlements both existing prior to and executed after the commencement of the Act; as regards the interests of infants and lunatics in land and as regards the extension

of the statutory provisions relating to land charges to charges for death duties, and other matters.

In dealing with the matters last mentioned, the Act adopts the procedure of first indicating in a series of sections the purpose it is desired to secure, referring in each case to a Schedule where the various provisions to effect the object desired are worked out in detail. Thus in Section 9 it is provided that for the purpose of securing that the legal estate shall vest and remain vested in a mortgagor of land or in a purchaser from a mortgagee or other person who becomes entitled to the land free from the right of redemption, the provisions contained in the Second Schedule to the Act are to have effect without prejudice to the right to create equitable mortgages by deposit of documents or otherwise. In order to achieve these objects it is provided in the said Schedule that legal mortgages are to take effect or be created only by demise or sub-demise for a long term of years or by charge by way of legal mortgage so as to leave the fee simple or the leasehold reversion, as the case may be, in the mortgagor. This system is carried into effect both as regards mortgages of freeholds and leaseholds existing at the commencement of the Act and created thereafter, due provision being made for second and subsequent mortgages and sub-mortgages. When a mortgagee sells under his power of sale the legal fee simple will be vested in the purchaser by the conveyance, and if desired the fee simple can be conveyed in the name of the Mortgagor. When the mortgagee obtains an order for foreclosure absolute the legal fee will vest in him. When a mortgagee obtains a title under the Statutes of Limitation he is given power to enlarge the long term into or otherwise acquire a legal fee simple. To quote the Memorandum prefixed to the Bill for the Act, "these provisions relating to mortgages are essential for it would not otherwise be possible to confer on the owner of an equity of redemption the powers of an estate owner." A purchaser or transferee for value is freed from investigating trusts affecting mortgage debts.

The Act does not affect the right of a mortgagee to take possession of the land or to appoint a receiver.

Similarly by Section 10 it is provided that for removing the difficulties incidental to land being held in undivided shares and for preventing the creation of undivided shares in land except under a settlement or behind a trust for sale the provisions contained in the Third Schedule to the Act are to have effect.

The difficulty here aimed at is that at present each undivided share is transferable and devolves separately according to its

individual title with the frequent result that the sale of the land as a whole is impracticable without a partition action. It is accordingly provided that where, at the commencement of the Act, land is held in undivided shares, the whole of the land is to vest in trustees on trust for sale, the beneficial interests taking effect as trusts affecting the proceeds of sale of the land and the profits until the sale, which can be postponed as long as may be necessary. The effect will be that a purchaser will not be concerned with the beneficial interests but will deal with the trustees without investigating the title to the undivided shares. After the commencement of the Act, it will not be possible to create an undivided share in land except under a settlement and it will then only take effect behind a trust for sale with similar results to those above noted.

Section 11 deals with Trusts for sale, the object being to protect purchasers acquiring land under such a trust and also the persons beneficially interested in the proceeds of sale or in the land until sale and for facilitating dealings with such land.

The particular virtue of a trust for sale is that where such a trust exists a purchaser is not concerned with the trusts of the proceeds of sale and by the Fourth Schedule protection is extended to such trusts whether created before or after the commencement or by virtue of the Act. The Schedule provides that where there is a power to postpone the sale then, in the absence of express direction to the contrary in any instrument creating the trust for sale, the trustees shall not be liable for postponing the sale indefinitely in the exercise of their discretion and that a purchaser of a legal estate shall not be concerned with any directions respecting the postponement of the sale; that a purchaser of a legal estate from trustees for sale shall not be concerned with the trusts of the proceeds of sale so long as the purchase money is paid to two trustees or to a trust corporation; limits to two (so far as a purchaser is concerned) the number of persons whose consent may be made requisite by the instrument creating the trust for sale to the execution of the trust; provides that where there is a conveyance on trust for sale and a settlement of the proceeds of sale by a separate deed, vacancies in the trusteeship under the two deeds respectively are filled up by the appointment of the same persons; and deals also with the powers of management which trustees for sale shall possess and be able to delegate, and other incidental and minor matters.

The provisions of the Fifth Schedule are of particular importance. Its objects, which are defined in Section 12 of the Act, are for assimilating the method of settling land to that employed in

settling personal estate ; for securing that settled land shall be vested in the tenant for life of full age or other persons who during a minority or at any other time where there is no tenant for life of full age, have the powers of a tenant for life ; for providing for the devolution thereof on a death to personal representatives until an assent is given ; for protecting equitable interests under a settlement by requiring capital money to be paid to at least two trustees or a trust corporation ; and for protecting trustees of settlements and purchasers of settled land.

The Fifth Schedule then proceeds to lay down the method by which alone after the commencement of the Act settlements of land *inter vivos* shall be effected. There will be two deeds, viz., a vesting deed containing a conveyance of the land the subject of the settlement and an appointment of trustees for the purpose of the Settled Land Acts ; and a trust deed declaring the trusts affecting the settled land and appointing trustees for the purposes of those Acts, the trustees of both deeds being the same persons. By the vesting deed the settled land will be conveyed to the tenant for life of full age or statutory owner (*i.e.*, the trustees of the settlement or other persons who, during a minority or at any other time when there is no tenant for life of full age, have the powers of a tenant for life under the Settled Land Acts) to be held upon the trusts declared concerning the same by the trust deed and for giving effect to any equitable interests and powers.

In the case of a settlement created by the will of a person who dies after the commencement of the Act the will is to be deemed the "trust deed." Where settled land is at the commencement of the Act vested in the personal representatives of a person who dies before such commencement, the settlement is to be deemed the "trust deed" and subject to the requirements of administration and provision being made for death duties, etc., such representatives will be bound by a "vesting assent" to convey the settled land to the tenant for life of full age or statutory owner. On the death of a tenant for life of full age or other statutory owner the settled land will devolve upon his personal representatives upon trust (subject to providing for death duties, etc.), to convey the settled land by a vesting assent to the person next entitled. Very similar provision is made with regard to settlements existing at the commencement of the Act and to instruments intended to create a settlement executed after such commencement, the trustees being bound on the request of the tenant for life of full age or statutory owner to execute a "vesting deed." In all cases of settled land within the Settled Land Acts, a vesting instrument

will require to be executed as soon as the Act comes into operation ; but not where the land is subject to an immediate trust for sale.

Provision is also made so that, when after the commencement of the Act land is acquired with capital money arising under a settlement, the land shall be conveyed to the tenant for life of full age or statutory owner by means of a supplemental vesting deed.

Having thus provided for the legal estate in settled land to become vested in these varying circumstances in the tenant for life of full age or statutory owner, the Act protects purchasers by enacting the matters which they shall be bound and entitled to assume and absolving them in general from the necessity of calling for the trust deed, whether or not they have notice of its contents.

As regards infants and lunatics, dealt with in s.13 and the Sixth Schedule, the objects are to secure that the legal estate of an infant shall vest or be vested in trustees, to provide for the management of land vested in personal representatives during a minority and for conveyances and settlements on behalf of lunatics and " defectives." The provisions for effecting these objects are contained in the Sixth Schedule.

All these provisions follow, it will be seen, the same general scheme and are all aimed at the same object, viz., the simplification of the investigation of title to land by keeping off the title altogether the equitable interests which have at present to be traced and cleared off before the purchaser can feel himself protected, while at the same time preserving the power of creating such equitable interests and protecting the owners of them.

Mention has already been made of the extension by the Act of the Land Charges Registration and Searches Act 1888 to new additional rights of various kinds so as to provide that after the commencement of the Act such rights, unless registered, shall be over-ridden notwithstanding that a purchaser may have notice of them. This subject is dealt with in Section 14 and the Seventh Schedule. The most important items to which this necessity for registration will be more or less immediately applied are, perhaps, charges acquired by the Inland Revenue Commissioners for Death Duties, restrictive covenants entered into after the commencement of the Act, and local authorities' charges under the Public Health Acts and similar Acts. As regards these and other items, the general trend of these provisions is to enact that such charges, unless they attached before the commencement of the Act and the purchaser had notice of the facts giving rise to the charge, shall unless registered be void as against a purchaser for money or money's worth, but there are certain qualifications of which careful note must be taken,

and which it is impossible to deal with at length. Every bankruptcy petition will have to be registered as a *lis pendens* and every receiving order as an order affecting land.

Having reached this stage in his study of the Act the reader will feel that the main policy of it has been disclosed and in a large measure worked out in detail and will be inclined to regard the remainder of it as in part merely incidental and consequential to such main policy and in part such as might really have formed the subject of another statute, *i.e.*, an Act of the "Amendment" variety bringing up to date a code which the passage of years has rendered old-fashioned. In this to a great extent he will be justified, although there are yet to come many provisions of the greatest importance. In the first place, in Part II the Settled Land Acts are radically amended, both incidentally to the main scheme and from the "modernising" standpoint. Part IV deals similarly with the Trustee Acts. By Part III numerous amendments are made in the Conveyancing Acts which are chiefly incidental to the main scheme. Part V creates history by the abolition of copyhold and customary tenures, Part VI providing for the eventual extinguishment of all manorial incidents. To quote the explanatory Memorandum prefixed to the Bill for the Act, "the existence of copyhold tenure stands in the way of all far-reaching land law reform." Part VII deals with perpetual renewable leaseholds, leases for lives, fines, etc. Part VIII on the ground (as stated in the Memorandum) that "it would not satisfy modern ideas to apply the existing law relating to the devolution of personal estate on an intestacy to land generally" makes important alterations in that law before applying it as amended to both real and personal estate. Part IX repeals and replaces with amendments Part I of the Land Transfer Act 1897 relating to devolution of real estate on death to the personal representative, and Part X, after enacting the amendments necessary to bring the Land Transfer Acts into line with the general law as altered by the earlier Parts of the Act, makes provision in effect for the "trial period" of ten years (already alluded to) after which the system of compulsory registration may be extended. Part XI contains the definitions. It is proposed to allude as briefly and concisely as is consistent with conveying a general idea of their contents to these last-mentioned Parts of the Act.

To deal first with the Settled Land Acts, the principle underlying the alteration and extension of the present law effected by the Act is that the tenant for life or statutory owner should be placed on approximately the same footing as an absolute owner subject to proper safeguards being provided for the remaindermen.

By s.10 (2) of the Settled Land Act 1890, the principal mansion house cannot be sold by the tenant for life without the consent of the trustees of the Settlement or an order of the Court. Under the new Act this provision is not to apply in the case of a Settlement made or coming into operation after the commencement of the Act unless the settlement expressly so provides. A tenant for life is to have power to sell land in consideration of an annual rent charge and in the case of a sale to a statutory company in consideration of fully paid securities of the Company. The present maximum periods for which a lease of settled land may be granted by a tenant for life for (a) building, (b) mining, and (c) any other lease, are at present under s.6 of the Act of 1882 (a) 99 years, (b) 60 years, and (c) 21 years respectively; these are extended to (a) 999, (b) 100, and (c) 50 years respectively. Among other powers given are an extended power to dedicate land for streets and open spaces, etc.; a power on a sale to impose restrictions and reserve easements; a power to accept leases; a power to grant options for purchase or lease; a power to compromise claims and release restrictions, and last, but not least, a general power for the tenant for life to effect any transaction not otherwise authorised by the Settled Land Acts as so amended or the Settlement, on obtaining the leave of the Court, provided that the transaction could have been validly effected by an absolute owner.

Section 64 of the Act makes additions to the category of purposes to which capital moneys shall be capable of being applied. Among the added items are the purchase of the leasehold interest where the immediate reversion is settled land; the payment of the costs and expenses of plans, surveys and schemes under the Town Planning or similar Acts; the purchase or discharge of an annuity charged under the Tithe Act 1918 on the settled land; and the payment to a local or other authority of the consideration for that authority taking over the liability for the repair of private roads, etc., on the settled land.

Very important provisions from the point of view of the landowner and land agent are contained in s.65 of the Act, which greatly extends the "improvements" authorised by s.25 of the Act of 1882. The necessity for the submission by the tenant for life of a scheme for the execution of the improvement to the Trustees or the Court which at present exists under s.26 of the Act of 1882, is done away with. The new "improvements" sanctioned by the Act are in effect divided into two categories, viz., (a) those to which capital monies can be applied without qualification save that the trustees of the settlement *may*, if they think fit, require that the capital

money expended upon them shall be repaid to them out of the income of the settled land by not more than fifty half-yearly instalments, and (b) those in respect of which such conditions as to repayment *must* be imposed. The new improvements falling within the first category are (1) Residential houses for land and mineral agents, managers, clerks, bailiffs, woodmen, gamekeepers, and other persons employed on the settled land or in connection with the management or development thereof; (2) offices, workshops and other buildings of a permanent nature required in connection with such management or development; (3) the development of the settled land or any part thereof as a building estate, and the erection building, making, and laying out for that purpose of a long list of buildings, works, etc., of practically every character; (4) the restoration or reconstruction of buildings damaged or destroyed by dry rot; (5) structural additions and alterations to buildings reasonably required, and (6) boring for water and other preliminary works in connection therewith. Those falling within the second category are (1) the provision of heating hydraulic or electrical apparatus for buildings; (2) the provision of works for the installation of artificial light in the principal mansion house or other house or buildings (not including decorative fittings), and (3) the provision of steam rollers, tractors, engines, motor lorries and moveable machinery for farming or other purposes.

Among other powers given with respect to settled land by Part II of the Act is a power to the Court to authorise the trustees of a settlement to exercise the powers of a tenant for life, where the tenant for life has, by reason of bankruptcy, assignment, incumbrances or otherwise, ceased to have a substantial interest in the estate.

Turning to the amendments of the Conveyancing Acts contained in Part III of the Act, which are intended to facilitate generally the transfer of land, space does not permit of mentioning more than a selection of the alterations and improvements made which range over a great variety of subjects. It will no longer be necessary in a conveyance of freehold land to use the word "heirs" or the expression "in fee simple" in order to pass the fee simple or the word "successors" in such a conveyance to a Corporation. A person must in executing a deed after the commencement of the Act sign or make his mark as well as seal the deed, thus clearing up a doubt of long standing. Any deed, whether or not an "indenture" may be described as a deed or as a conveyance, lease, etc., according to the nature of the transaction to be effected. Acknowledgments by married women are abolished, as also the enrolment of disentailing

assurances. Two useful provisions are contained in s.80 (4) and s.84 of the Act. By the first a statutory declaration by the holder of a power of attorney that he has not received any notice or information of the revocation of his power by death of the donor or otherwise is, if made within a specified time, to be taken, for the protection of a person contracting with the attorney, as conclusive proof of such non-revocation at the relevant time. By the latter, an endorsed receipt on a mortgage for the repayment of the mortgage money is to operate without any reconveyance, surrender, or release as a complete discharge of the mortgage and so as to re-vest the mortgaged property in the person entitled to the equity of redemption. Another useful provision is that of s.105, which provides that any money becoming payable after the date of the contract of sale of property under any policy of assurance in respect of any damage to or destruction of the property, the subject of the contract is, subject to any stipulation to the contrary, to be held by the vendor on behalf of the purchaser and be paid over on completion to the purchaser.

By Section 94 thirty years is substituted for the present period of forty years as the statutory title to land which must be adduced subject to any stipulation to the contrary ; and by s.104 stipulations made on the sale, etc., of land which seek to preclude a purchaser, lessee or underlessee from employing his own solicitor are to be void.

Perhaps, however, the most novel alterations effected by Part III of the Act are those contained in Sections 90, 92 and 107. The first-mentioned section gives power to the official arbitrators appointed under the Acquisition of Land (Assessment of Compensation) Act 1919, on the application of any person interested in any freehold land affected by any restrictive covenant, etc., as to the user thereof or building thereon by order to discharge or modify any such restriction, subject under certain conditions to payment of compensation to any person suffering loss in consequence of the order. The arbitrator must first be satisfied that the restriction ought to be deemed obsolete or that its continued existence would, impede the reasonable user of the land for public or private purposes or that the persons of full age and capacity entitled to the benefit of the restriction have agreed expressly or impliedly to the same being discharged or modified. Section 92, by amending s.45 of the Conveyancing Act 1881, makes it possible for a chief rent reserved on a sale to be redeemed. Section 107 empowers the Lord Chancellor to prescribe and publish from time to time forms of contract and conditions of sale of land which shall, unless there is some stipulation to the contrary, apply to contracts by corres-

pondence and which may, if express reference is made to them, be made to apply in other cases ; and also forms which a person making his will may incorporate therein by referring thereto.

The last provisions of this important part of the Act, which need here be referred to, are those of Sections 102 and 103, which deal with the rights of the public over waste land and commons and with the restriction of the inclosure of commons. By the former section, members of the public are given rights of access for air and exercise to any land which is a metropolitan common or manorial waste or a common which is wholly or partly situate within a borough or urban district and to any land which at the commencement of the Act is subject to rights of common and to which the section may be applied. The Lord of the Manor, or other person entitled to the soil of land subject to rights of common may by deed revocable or irrevocable declare that the section shall apply to the land and upon such deed being deposited with the Minister of Agriculture the land is so long as the deed remains operative to be subject to the provisions of the section. The rights of access thus given are, however, to be subject to any Act, scheme, or provisional order for the regulation of the land and the Minister must, on the application of any person entitled as Lord of the Manor or otherwise to the soil of the land or entitled to commonable rights, impose such limitations on and conditions as to the exercise of the rights of access, or as to the extent of the land to be affected as, in his opinion, are necessary or desirable for preventing any right of a profitable or beneficial nature in the land being injuriously affected, or for protecting any object of historical interest. Moreover, the rights of access are not to include any right to draw or drive upon the land a carriage, cart, caravan, truck or other vehicle, or to camp or light any fire thereon, which acts are made subject to a penalty on summary conviction, thus dealing with the gipsy difficulty. By the latter section, which applies to land which at the commencement of the Act is subject to rights of common, the erection of any building or fence, or the construction of any other work whereby access to the common land will be affected, without the consent of the Minister of Agriculture, is made unlawful, a power being given to the County Court to order the removal of the work, subject to appeal.

As regards the Trustee Acts, Part IV besides providing for matters incidental to the main scheme of the Act, introduces various amendments designed to simplify and shorten legal documents. Among these are provisions restricting the number of trustees of a settlement of land, or holding land in trust for sale to a total of four, on the ground that unless the number of trustees were restricted

land could in effect be made unsaleable ; a provision that a statement contained in any instrument by which a new trustee is appointed for any purpose connected with land to the effect that a trustee has remained out of the United Kingdom for more than twelve months or refuses or is unfit to act or is incapable of acting, shall in favour of a purchaser of a legal estate be conclusive evidence of the matter stated ; a power to trustees to protect themselves by advertisement against claims of which they have no knowledge in the same way as personal representatives can at present ; powers to trustees to deposit trust money or documents with a bank, to cause trust accounts to be audited, to lend money on authorised securities upon terms that the loan shall not be called in during any period not exceeding seven years from the date of the loan ; a power to concur in any scheme or arrangement for the reconstruction of a company ; and a power to take advantage of any preferential right to subscribe for securities of a company which may be offered to them in respect of any previous holding in the company, and to sell such rights.

Parts V and VI and the Twelfth Schedule of the Act deal with subjects which are closely associated, viz., the abolition of customary copyhold tenure and the extinguishment of manorial incidents, and can be considered together. By s.128 copyhold land is by virtue of the Act to be automatically enfranchised and cease to be of copyhold and customary tenure. Nevertheless, until they are extinguished as provided in Part VI of the Act noted below, certain manorial incidents will be unaffected and the land and the person entitled to it will remain subject thereto. These manorial incidents are : (1) quit rents, chief rents, and other similar rents or payments ; (2) fines, reliefs, heriots, dues and fees payable to stewards ; (3) forfeitures other than forfeiture for the conveyance or attempted conveyance of an estate of freehold in the land or for alienation without license ; and (4), rights as to timber. This is, however, subject to the qualification that in lieu of a chattel liable to be seized as a heriot a sum equal to the value of the heriot shall be payable. This preservation of the manorial incidents is, however, temporary only, and it will be seen that Part VI of the Act provides for their extinction after the expiration of a (save in exceptional cases) maximum period of ten years from the commencement of the Act).

The effect of this automatic enfranchisement will be (1) that the land will be freehold, free of liability for forfeiture for the conveyance or attempted conveyance of an estate of freehold or for alienation without license ; (2) the tenant will be free from the customary suits and services and from liability to do fealty ; (3) In place

of the lord's right of escheat, the Crown or the Duchy of Lancaster or the Duchy of Cornwall (as the case may require) will become entitled to the land as *Bona vacantia* under the provisions of Part VIII of the Act (referred to later), and (4) the land will cease to be subject to the custom of Borough English (a custom under which the youngest son is the sole heir of the deceased tenant), or of Gavelkind (a custom whereby the lands descend to all the sons equally), or any other customary mode of descent, but will be governed as to descent by Parts VIII and IX of the Act, which are noted hereafter and which deal with the law of intestacy and the devolution of real estate to the personal representative.

The enfranchisement so effected will not, however, affect the rights and interests of any person in the enfranchised land under a will settlement mortgage or the like, which rights will continue to attach in the same way as nearly as may be as if the land so made freehold had been comprised in the instrument or disposition under which that person claims. Nor will it affect any right of common to which a tenant is entitled in respect of the enfranchised land nor any right of the lord or the tenant to any mines or minerals or to the rights of the lord in respect of fairs, markets, sporting game, fish, fowl, etc.

Until the manorial incidents are extinguished every assurance of the enfranchised land must be produced to the Steward of the Manor for endorsement (on payment of the same fines, etc., as would have been paid if the land had remained copyhold) within (in general) six months of its execution. Provision is also made for the contingency of a vacancy in the office of steward. Part V is also made applicable to perpetually renewable copyholds, but in the case of copyholds for life or years without a right of perpetual renewal, the copyhold interest is converted into a leasehold interest.

This and the following Part of the Act will put a summary end to many interesting and picturesque survivals of a past age, and it is therefore the more interesting to note that the services incident to Grand and Petty Sergeanty (Forms of tenure under which the tenant owes a special service, either of a personal character or by rendering some article, to the King or a mesne lord) are unaffected and therefore preserved.

Part VI of the Act prescribes three ways in which the manorial incidents will (subject to compensation being paid) be extinguished, viz., (1) by agreement between the lord and the tenant as to the compensation within ten years after the commencement of the Act; (2) upon the service by the lord or the tenant upon the other within ten years after such commencement of a notice requiring such com-

pensation to be ascertained (the lord not being, however, entitled to serve such notice till after five years from such commencement) ; and (3) automatically (but still subject to compensation being paid) upon the expiration of ten years after such commencement. In the case, however, of a manor with not less than 1,000 tenants holding land affected by manorial incidents, the Minister of Agriculture can on the application of the lord or not less than two-thirds of the tenants, extend the period of ten years.

The amount of the compensation will be determined by a scale which appears in Part II of the Thirteenth Schedule to the Act, which will be of universal application except in any case in which the Minister of Agriculture for special reasons considers that such application would work injustice to either party. An important provision is, however, that no compensation is to be paid for any advantage accruing to the tenant by reason of the extinguishment of any incident which, though onerous to the tenant, is of no pecuniary value to the lord. The compensation when ascertained is to be payable either as a gross sum or by way of terminable rent charge, but must be paid as a gross sum in the case of settled land (where there is sufficient capital money available), land held on trust for sale (where there is sufficient personal estate available), or if the compensation does not exceed £20. Special provisions are made as to the costs of the extinguishment of manorial incidents, such costs being thrown in general upon the person chiefly benefited by such extinguishment. Provision is also made for compensation to the stewards of Manors for loss of office.

Under the provisions of Part VII perpetually renewable leases and underleases are converted into long terms and leases for lives at a rent are to take effect for a term of 90 years determinable by notice given by either party after the death of the lessee. To quote the Memorandum prefixed to the Bill for the Act "There is no justification for allowing perpetually renewable leases to be granted ; the practice is as expensive as it is useless." The interests of parties affected by such conversion are duly provided for, fines on renewal being converted into additional rent which will be capable of commutation.

Under Part VIII the amendments of the Law of Intestacy which, have already been referred to, are effected. The plan adopted based on searches made at Somerset House gives effect according to the Memorandum "to what the majority of intestates would have done if well drawn wills had been prepared for them and at the same time removes the complications and injustice which would have resulted if the present archaic law of intestacy, applicable to

personal estate, had been adopted without amendment." The principles upon which the changes introduced by this Part are based, are first, that the real and personal estate should devolve together according to the same rules in order to avoid the difficulties and costs which have arisen or have been incurred in the past by reason of the property devolving in different ways; secondly, that men and women should be on an equal plane as regards succession in an intestacy, instead of the male having a preference as at present; thirdly, that relatives of the whole blood should be preferred to those of the half blood; and, lastly, that very remote kindred should be excluded "not with a view to benefiting the Crown but to avoid the costs of obtaining evidence which in these cases more often than not exhaust the whole estate." The Crown is given express power to distribute the estate among deserving dependents of the intestate in accordance with the present practice of the Treasury.

Accordingly, all existing modes, rules and canons of descent, tenancy by the curtesy, dower and freebench and escheat to the Crown or the Duchies of Lancaster and Cornwall are abolished.

On the death, after the commencement of the Act, of a person intestate, his real and personal estate is to be held by his personal representatives as to the real estate upon trust for sale and as to the personal estate upon trust to call in, sell and convert into money such part thereof as should not consist of money. All the directions as to payment of funeral expenses, debts, and expenses of administration, and all the powers of postponement, management, etc., usually found in a properly drawn will are applied to the case of an intestate. The Act then makes provision for the devolution of the residuary estate of the intestate. If the intestate leaves a husband or wife, the surviving husband or wife will take:—

- (a) the personal chattels absolutely—*i.e.*, carriages, horses, stable furniture and effects, motor cars and accessories, garden, live and dead stock and effects, domestic animals, plate, linen, china, glass, books, etc., etc.
- (b) a first charge for £1,000 free of death duties and costs with interest at 5% from the date of death until payment.
- (c) if there are no issue, a life interest in the whole of the balance.
- (d) if there are issue, a life interest in half the balance, the issue taking the other half.

Power is then given to a personal representative to purchase or redeem the life interest of the surviving spouse with his or her

consent or with the consent of the Court so as to avoid the delay in distribution which would otherwise occur. It is stated in the Memorandum that the large majority of intestates' estate are very small in value. Hence the first charge of £1,000 in favour of the surviving spouse will in most cases exhaust the estate and where a small balance is left the life interest can be redeemed.

In the case above described, the surviving husband would to-day have taken all the personal estate and possibly an estate for life by the curtesy in the real estate; and the surviving wife would have taken a first charge for £500, if there were no issue, under the Intestates' Estates Act, 1890, her dower and half of the personalty if there were no issue and a third if there were issue.

If the intestate left issue, but no husband or wife, the residuary estate will be held for the issue on the "statutory trusts" defined as "for the children or child of the intestate who attain the age of 21 years or marry under that age, the issue who attain the age of 21 years or marry under that age of any child who may have predeceased the intestate taking the parent's share."

The Act then proceeds to provide in turn for cases where there is no husband, wife or issue until the limit of remoteness adopted by the Act is reached and where the present code is altered, the Act reflects the principles already referred to. Part VIII also contains other provisions as to the devolution of the real estate of a lunatic and other matters and incidentally provides that a will expressed to be made in contemplation of marriage will not be revoked by the solemnization of the marriage contemplated.

Part IX (to quote the Memorandum prefixed to the Bill of 1922) "repeals and replaces with amendments Part I of the Land Transfer Act 1897, relating to the devolution of real estate on death to the personal representatives which has given rise to unnecessary trouble in practice. Apart from the defects of the part of the Statute repealed, the new enactment is essential to the general scheme, first because on the death of a tenant for life of full age or other sole statutory owner the settled land will devolve on the trustees of the settlement as his personal representatives for this purpose who will by writing assent to the same vesting in the person next entitled" and secondly because under the Part of the Act last dealt with the devolution of beneficial interests on an intestacy is altered. In the course of dealing with these matters, this Part contains other provisions ancillary thereto.

The principal provisions of Part X, which contains amendments of the Land Transfer Acts required to bring those Acts into line with the general law as amended by the preceding parts of the Act and

to give effect to the recommendations of Sir Leslie Scott's Committee, is that which in effect gives the trial period of ten years, already referred to, in which the two systems of conveyancing with or without a register of title can be tested.

It is provided in each of the Parts II (Amendments of Settled Land Acts), III (Amendments of Conveyancing Acts), IV (Amendments of the Trustee Acts), and X (Amendments of the Land Transfer Acts) that those Parts are to be construed with the class of Acts which they amend and are to be cited with them accordingly and it is recognised that consolidating measures will be required of each set of statutes affected. New Rules of Court and new rules to be made by the Minister of Agriculture and new rules under the Land Transfer Acts will also be required, while, to round off the situation, the repeal by a Statute Law Revision Act of the statute law rendered obsolete but not expressly repealed by the Act will be desirable. These steps will, it is to be hoped, be taken before the Act comes into operation.

Such then is the Law of Property Act, 1922, a monumental production which revolutionises that result of centuries of growth, the present law of real property. To the extent that it abolishes what the Memorandum prefixed to the Bill of 1922 calls "unnecessary or objectionable technicalities" its effect must be for good. Members of the legal profession as a whole, not to mention land owners and land agents, have a laborious and difficult task before them, first to obtain a grasp of the general theory of the Act, and secondly to master its innumerable details: and busy practitioners will find it difficult to digest the heavy meal put before them in the intervals of their daily work. To make a last quotation from the Memorandum to which reference has so often been made, it was there written that "it is a profound mistake to suppose that a lawyer will have to go to school again to relearn his law if the Bill be passed." It is legitimate to wonder whether some members of the profession, not to mention others to whom a general knowledge of real property law is a necessity, may not, as the encyclopaedic nature of the Act is increasingly realised, regard this as a somewhat optimistic statement.

The writer of this article desires to acknowledge his indebtedness to Mr. W. E. Wilkinson's "*Guide to the Law of Property Act 1922*" (published by the Solicitors' Law Stationery Society at 5s.), a work which effects much saving of time in the perusal of the Act.

II.—THE NEGLECT AND REPAIR OF ANCIENT COTTAGES.

By A. R. Powys, A.R.I.B.A.

For some years before the war the cost of builders' work was rising steadily. In 1914 it cost 15 to 20 per cent. more than it did in 1900. During a period of peace when life was settled this increase was sufficient to deter the greater number of people from putting their cottages into proper order. Then followed the war years when labour was scarce and the whole energy of the nation was rightly devoted to other matters. When at length it became possible again to consider what steps should be taken to repair these buildings the cost had risen a further 200 per cent. or thereabouts, with the result that those who had hoped to make up for the years of neglect found themselves quite unable to do so. Delapidations, so accentuated, left many cottages more or less derelict, which with regular repair would have remained decently habitable. And all the time the people were becoming more accustomed to modern conveniences which, when rightly provided and rightly used, make for health, decency, and comfort, but which also increase materially the cost of building and maintaining houses.

Everyone concerned with the management of an estate knows these facts and this article is not written to reaffirm them. Rather is it concerned with the double object of considering how those neglected cottages, which were built in the traditional manner of their neighbourhood, may be maintained both as works of interest, beauty, and as fit and serviceable homes. It is desirable that the reader should have the class of cottages about which this is written clearly in mind and for this reason a short paragraph about their nature follows here.

These cottages were built when the means of transport rendered it impossible to use any other materials than those found in the immediate locality: when the continued practice in using these, through many succeeding generations made the craftsmen very cunning in their management. They learned to a nicety what could be made of them and their correct use became a commonplace of daily life. The introduction of machinery and the tremendous improvement in the means of transport have brought to the yards and workshops of even the most isolated parishes a great variety of materials at less cost than all but a few of those which may be dug from the home lands, felled in the near woods and shaped by hand in the open field or beneath such shelter as would suffice to

protect them from damage caused by rain, heat or frost. It would be useless, even if it were desirable to attempt to return to the conditions under which such work was done. Yet this should not prevent our rendering as a tribute to our fathers such appreciation of their work as may be shown by continuing to keep what they made in daily use. These buildings are of the history of England. The people made them and in their turn they went to form and still do go to form, the temper and sturdy qualities of their children. By a study of the thoughtful manner in which these folk used the building materials as their disposal we can learn very much as to how we can build good houses to-day with the materials that are brought ready prepared from great distances.

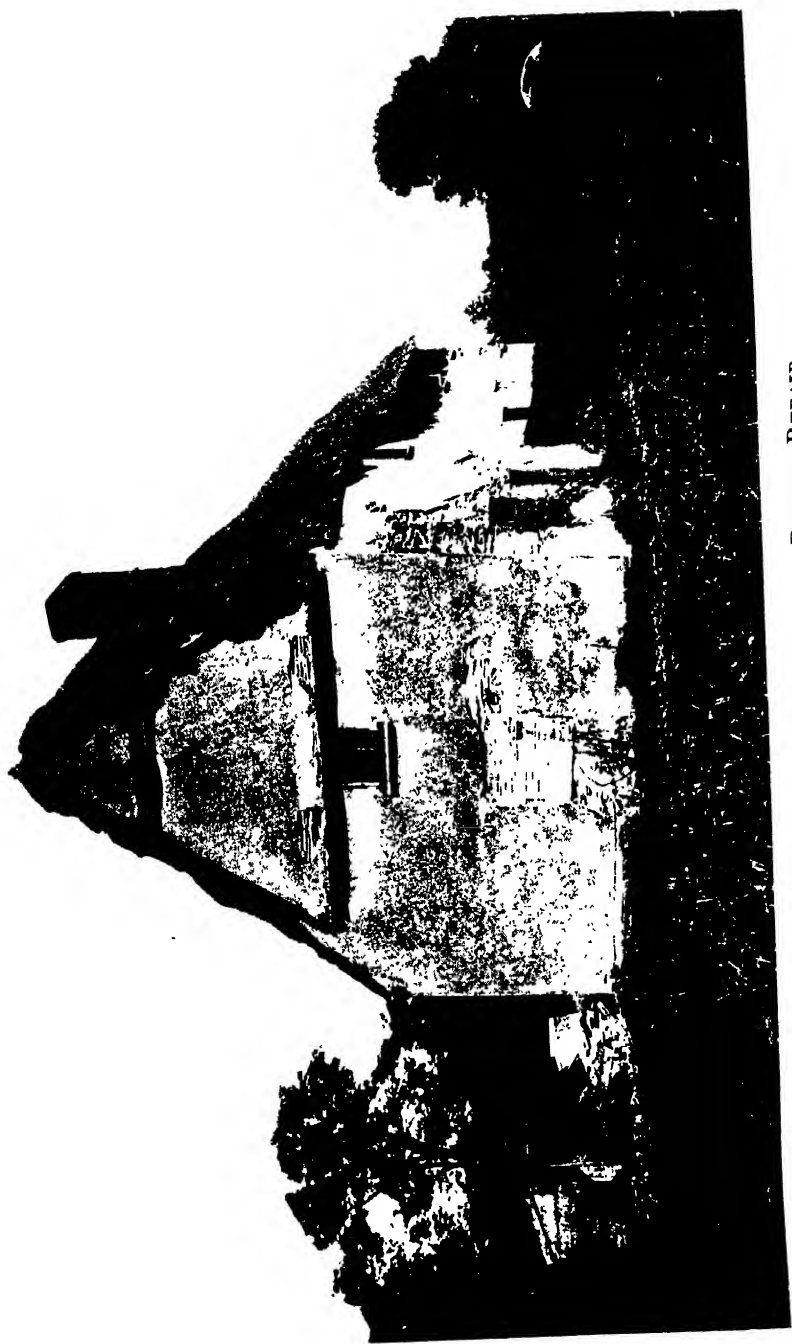
In the old houses men with greater possessions, more security, or more leisure than their neighbours, and these attributes are in a way synonymous, showed their pride in well being by giving to them a better finish than would otherwise have been possible. This fine finish may sometimes have resulted from a desire to show their superiority over their neighbours, but it was for the most part as the result of a keen pleasure in good work that it came into being. To-day it is clear that the motive which brings in its train a grand confusion of forms, colours, and materials, is not a desire for good work and can be called by no other name than snobbery. By noticing such contrasts we may learn what to avoid in our own new work and, by preserving the simple as well as the richer examples of the old, we preserve the opportunity of gaining such knowledge easily, as well as the pleasure which may be had from them as homes, as examples of fine craftsmanship and as living sentences in the history of our country.

Reference has been made to the economic conditions of the past few years and of the present day because, although some may be willing to spend much money on the maintenance of these cottages, it is neither right nor desirable in times like the present that this should be done unless such operations take their part in satisfying the housing needs of the greater part of the people. It is then the object of this article to show that these buildings can be repaired with true economy and that their continued existence is so important to the needs of the people of England that, even if in some cases it were necessary to spend proportionately rather more on their upkeep than is usually the case when more modern buildings are put in order, it is desirable that that extra sum should be spent. Further, I hope to add a few technical notes which may be useful to those who wish to preserve the character and beauty of the dwellings of the country side.

Again, I restated the bald facts of the rise in prices to remind that small group of persons, who give to their sentimental emotions a greater importance than is generally held to be their due, that they are often mistaken when they complain that the owners of these buildings are regardless of the welfare of their tenants and are without any knowledge or appreciation of the cottages in which these folk were born and do now live. To blame an owner for not repairing his cottages is unjust if that repair cannot be effected with reasonable economy. The estates of the very rich are seldom, if ever, so neglected. It is only when men of means accept the responsibility of ownership and yet fail in maintaining their cottages that this blame is just.

The people itself has had an opportunity of causing its neglected houses to be put in order and has not taken it. For when every Rural District Council was engaged in carrying out housing schemes it was possible by a proper use of the local suffrage to have compelled these authorities to purchase and repair old buildings. Yet in 1920 the cases where District Councils took this action amount in all England to no more than 52. This should be known, for it is to some extent an answer to those critics who blame one class alone for their neglect. It shows that at present there is little general defined and articulate desire for the preservation of such buildings. It points to the fact that those who know their value should concern themselves as a first step with showing the people of the country the importance of these cottages so that it may by a powerful public opinion insist on their right treatment. As a class, the owners are more alive to the excellence of the qualities the old cottages possess and are consequently more willing to make sacrifices to maintain them than are the people who for the most part inhabit them. If a great majority of these buildings are to be preserved in use the people of the country must feel and voice its sense of their value. And failing this those who have this knowledge must preserve all those that they can so that coming generations at least may have the opportunity to share their pleasure in them.

It is stated that when the housing schemes were prepared in 1920, there were 1,808 cottages in this country condemned as unfit for habitation, while in 1921, there were 1,789 houses condemned, of which only 749 were repaired. That most of these have not been repaired indicates an extravagant waste of labour and material which went to make these homes. New houses have been built, but that fact does not justify the neglect of the old ; the more is this so because old cottages have about them the feeling of home which is seldom obtained under modern building conditions. New houses with



DRINKSTON COTTAGES, WEST GABLE, BEFORE REPAIR.

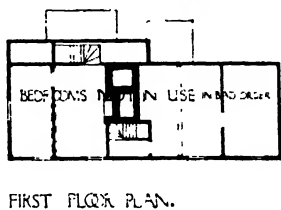
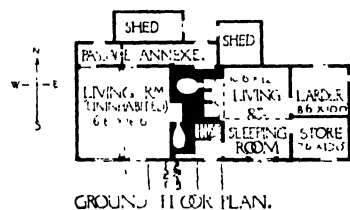


DRINKSTON COTTAGES, WEST GABLE, AFTER REPAIR.

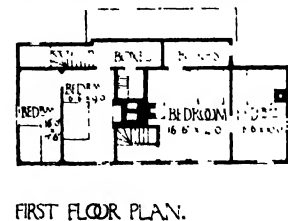
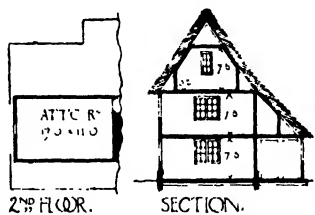
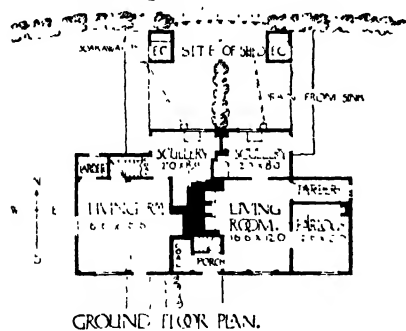
COTTAGES AT DRINKSTONE, WOOLPIT, SUFFOLK PLAN BEFORE AND AFTER THE REPAIR & ALTERATION

10 20 30 40 50 60 70 80 90

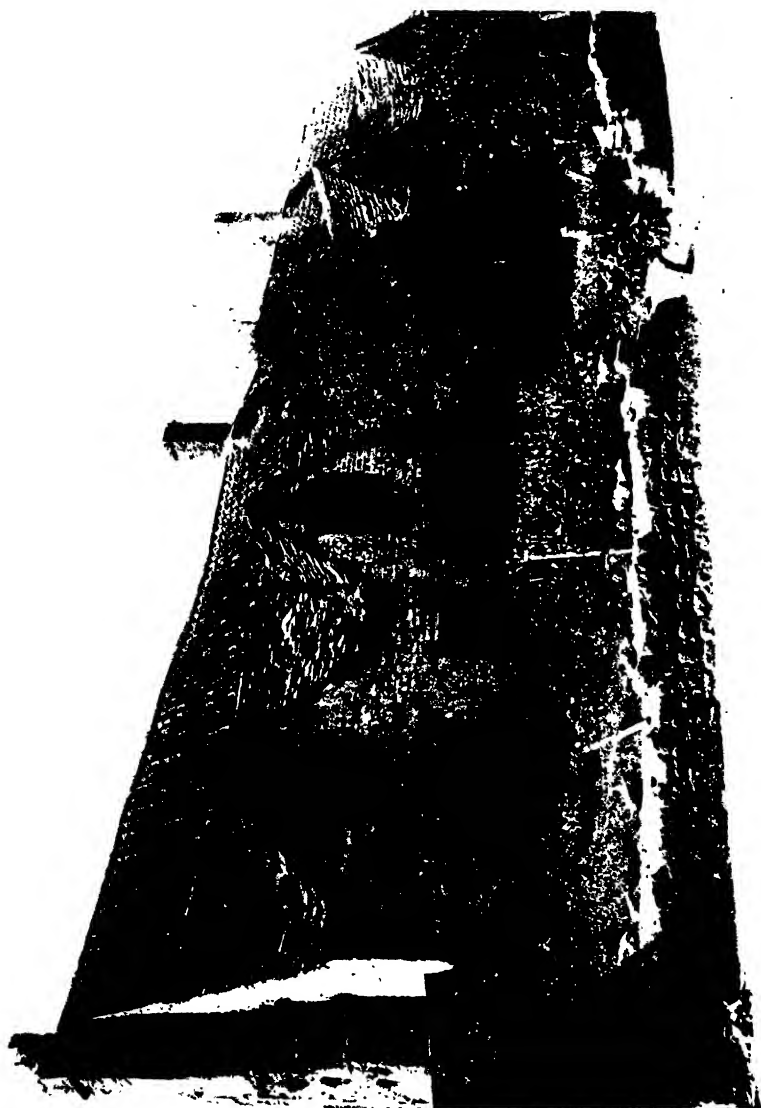
BEFORE REPAIR 1919.



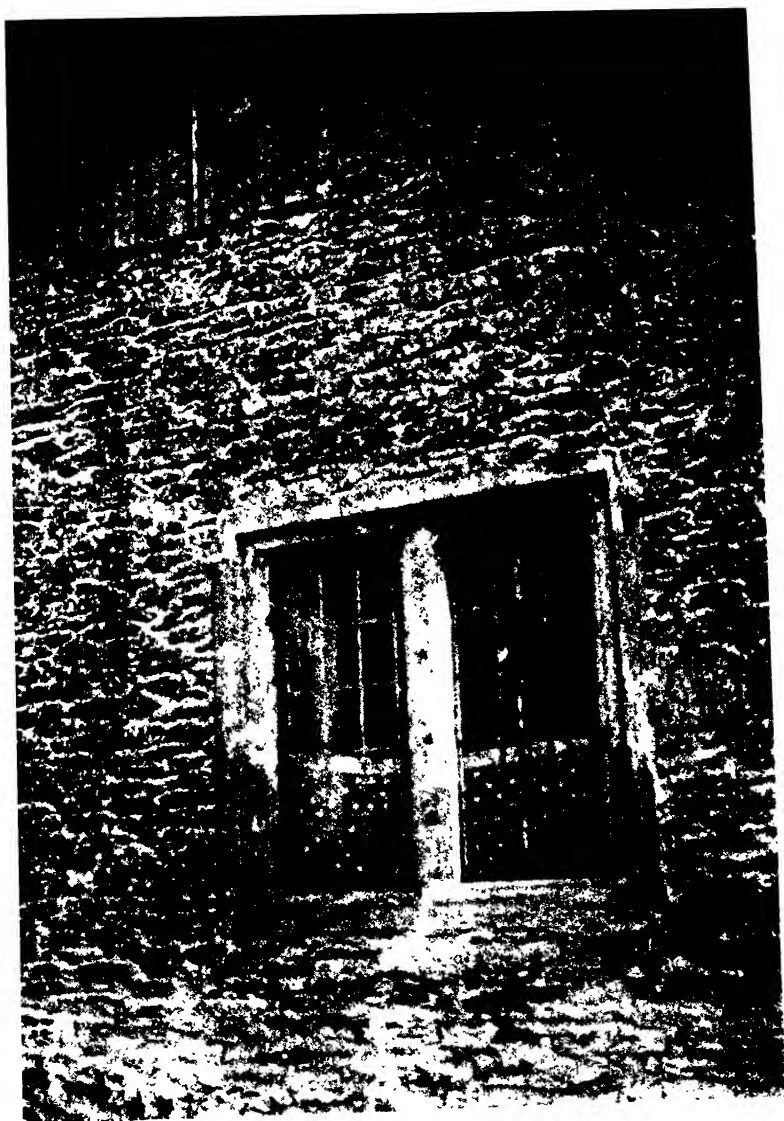
AFTER REPAIR 1921



W & W FOR S.P.A.B

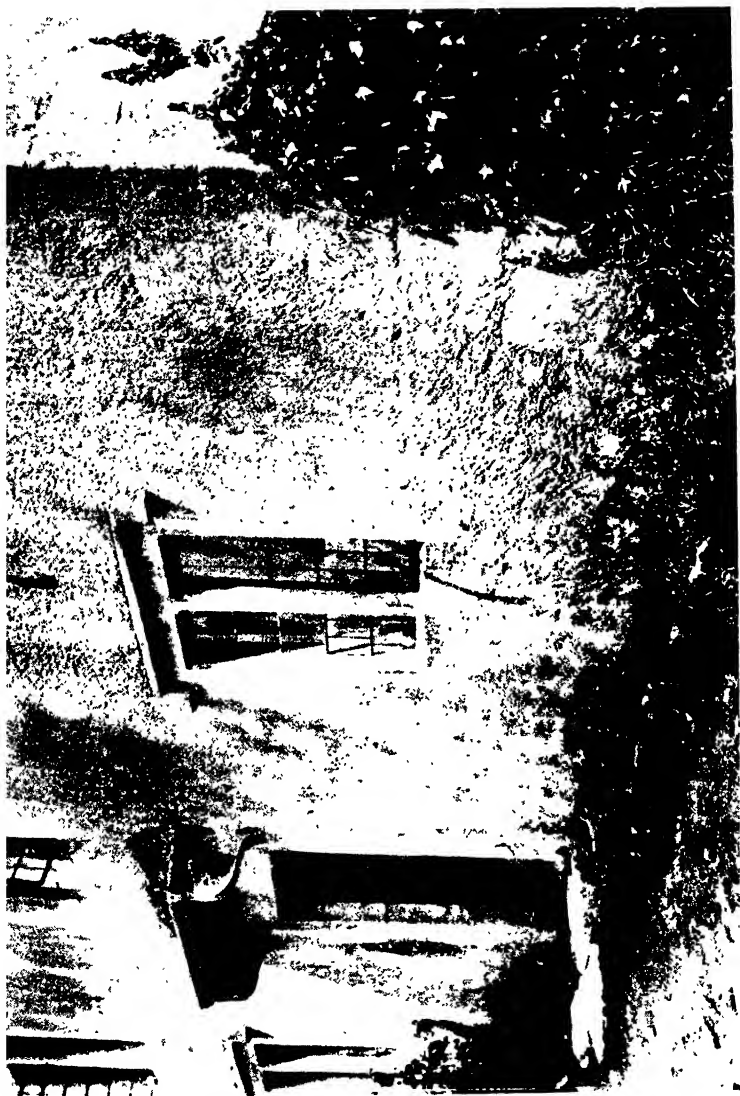


OLD COTTAGES BEFORE REPAIR.



RUBBLE STONEMWORK, CASTLE COMBE.

See page 29



ROUCH CAST, CASTLE COMBE.

See page 29

their reduced floor area and greater heights lack the individual characteristics and present a sense of coldness which does not make for the fullest happiness in family life. Of the old it may be said that they lack those labour-saving devices which considerably increase the ease with which the domestic work can be done. This is no argument for abandoning them, for it is cheaper to add these conveniences to an old house than it is to build a new one to contain them.

Nor can the cost of repairing these condemned cottages be considered prohibitive, or even uneconomical. In a typical instance in a rural district of a house acquired in 1920, the building was valued at £85, and the estimated cost of conversion was £586, making a total cost of £671. In the same district the estimated cost of new houses was £914, both houses being of the parlour type, and both estimates being obtained within a month or so of each other. In another case, where the Society for the Protection of Ancient Buildings secured a pair of old and tumble-down cottages at Drinkstone, in Suffolk, in 1919, the total cost of repair for the two cottages was £722, or £261 apiece. This included the addition of sanitary conveniences, new windows, grates and cooking ranges, and the work was carried out at a time when houses with approximately the same accommodation were costing from £1,100 to £1,250 (See Plates I--IV). While it is not claimed that the cost of repairs has fallen to quite the extent that the cost of new erection has done, it is in many cases likely to prove the cheapest as well as the most satisfactory way of providing the housing so urgently needed in our own rural districts.

It may be useful to consider the advantages and disadvantages found in the plan and construction of old houses and to suggest how in the one case they can be applied to new ones and in the other remedied. So nicely balanced is the relationship of man's needs to his powers that it comes about that much deviation from the usual cubic space in which the English family dwells will make it impossible either to obtain a proper return on the money spent on housing or will produce a building insufficient for human needs as they are understood in this country to-day.

Thus one finds that 7,750 cubic feet are the habitable contents of a representative three-bedroom house. Accepting this as a fair figure the first thing to notice is the comparative floor area of old and new houses having such cubic contents. That of the old is about 516 superficial feet, and that of the new 456. This difference is balanced by the difference in the heights of the rooms, but the advantage in convenience lies with the older buildings. Then there

being corrected, it may well be possible to relay what is sound of the old material on concrete as the covering of one at least of the rooms, or as large hearths before the fire places. Elsewhere it may be better to use some material easily procured to-day, some jointless floor, like those whose chief ingredients are cement and sawdust. In writing of the ground floor of old cottages it comes naturally to the writer to think of the solid kind, for this in most cases is found. It is a practice which has much to be said for it. Many of these floors are nearly level with the ground outside, and it is courting the attacks of the fungus known as dry rot to lay boards on joists in such positions, unless, indeed, expensive precautions are taken. No cottage floor should be left at a level below the surrounding ground, and as it is seldom possible to raise a floor above ground level, except by unduly reducing the head room, the only course is to lower the ground outside. Where this is done there should be no narrow trench against the foot of the wall, but in its place a wide pathway or flower bed at least four times as wide as it is deep; for it is not only desirable to get an air space, but one in which sunlight can shine and the winds blow; one in which fallen leaves will not collect nor damp refuse lie unnoticed. A narrow trench filled with clean clinkers or hard core, laid close against the foundation walls will in some cases be found useful to keep the house walls dry.

In doing repairs to the outside of an old cottage it is most desirable that only materials of kinds like those of which it is built should be used, that is if its ancient beauty is to be maintained. Thus tile roofs should be repaired with tiles of a similar thickness and surface texture, plastered walls should be repaired with plaster no more smoothly applied than was done of old. Where lime-wash has been used in the past it should be used again, toned it may be with ochre, umber, or venetian red. The practice of spreading lime-wash not only gives an old building the appearance of cleanliness and well being, but it also actually preserves the materials of the wall beneath, be they brick, plaster, or stone. So discredited has lime-wash become during the last hundred years, and so little has it been used, that there are few who know rightly how it should be prepared, and although to describe in detail a technical point of this kind may not truly be within the scope of the present article, I will describe the old method. Only freshly burnt lump lime should be used. This should be slaked with boiling water poured on to it. When slaking is complete the resulting thick creamy lime may be passed through a fine sieve to remove unslaked lumps and alien matter. It should then be thinned to the consis-

tency of milk, again with boiling water. At this stage colour may be added and the wash applied in two or three thin coats. This will give a firm wash that resists the weather for many years. Some people recommend the addition of a little rock salt or tallow during slaking, claiming that the one or other give a better resistance to the rain.

This article would be incomplete if I did not draw attention to certain beauties of old building methods which often pass unnoticed. Beauties which are dependent upon the right use of local materials, now so much superseded by far-transported articles. Beauties which are more often unappreciated than are the carved and moulded members of richer buildings. In illustration of this I would have the reader look at the two accompanying plates, showing walling from old cottages standing at Castle Combe, in Wiltshire. The first shows an excellent weather surface of narrow rubble-stonework finely laid with well-struck joints; the second a plastered or rough cast, rendering mellowed and softened by repeated coats of limewash. No modern examples of such skilful work on local materials can be found to-day. The traditional methods have well-nigh been forgotten and time alone can add the further perfect finish that is seen on these walls. Once the ordinary man realizes how fine this workmanship is and how rich in beauty the result, it would be seldom that work of this kind would suffer from neglect or be scarred by ignorant patching. The squared quoin stones of the plastered cottage wall in themselves deserve a special study. They have a quality which entirely satisfies the artist and which, did he but know it, results very largely from the economic use of the material. First the stone is roughly squared with a hammer, a pick, or a coarse chisel; then the projecting lumps are worked down with finer tools until the stone is truly square, but this chiselling is not so deeply done as to remove all the marks of the first tooling. There is no excess of labour here, no prolonging of the operation, till an even surface, plain as smoothly trowelled cement, has disguised the inherent qualities of the material and the nature of the work upon it.

Other illustrations are given which show simple buildings of the kind we are too quickly losing, in whose interest this article is written.

Nor would I finish without appealing to those who are interested to help to preserve these old cottages. It can be done, as has been pointed out, economically in most cases, at a saving in many cases if the cost of new construction is taken into consideration. The Society for the Protection of Ancient Buildings has already done much valuable work in this connection, and a letter to the secretary would secure from him all the help and advice at his disposal.

III.—MODERN WEATHER FORECASTING.

By S. Leonard Bustin.

There are probably few subjects which have so wide an interest as the weather. This is not surprising when one considers the effects which the meteorological conditions have upon human activities. In all directions it is difficult to find an enterprise of industry or sport which, to some extent at anyrate, does not come under the control of the weather. Of all undertakings on land, none is more dependent on the nature of the seasons than agriculture. Every crop which the tiller of the soil sows is a veritable hostage to fortune. The land may be in sound condition, the seed may be of high quality, pests and diseases may be absent, and yet the deciding factor which settles the nature of the harvest will be the weather. Small wonder then that from very early times the farmer has anxiously scanned the face of the sky trying to discover signs which will help him to solve the riddle of the weather. Our country lore is rich in weather sayings not a few of which contain sound meteorological knowledge as true to-day as it was centuries ago. It is only within comparatively recent times, however, that the study of the weather has been taken up in a truly scientific manner. The early observers laboured under the great difficulty of having to consider the question purely from a local point of view. Important as the study of meteorology in any particular district may be the whole matter has, one might almost say a world-wide application. The cause which brought about the unseasonable summer of 1922 is not to be found in the British Isles. Here we were but feeling the effect of certain influences which probably originated thousands of miles away from our shores. In addition, we on this earth, are at the base of a vast sea of air which reaches upwards to a considerable distance. Until comparatively recent times the upper layers of the atmosphere were practically inaccessible and of what was happening in these far away regions we had little or no knowledge. The great advance in flying has made possible the exploration of the atmosphere to a considerable altitude. Gradually the mystery which has surrounded our weather is being solved. To the casual observer the progress made by the meteorologists may seem to be slow, but it should never be forgotten that the problem is a very big one and, in the very nature of things, must take a long time to elucidate. Often enough to establish one small point a whole series of observations spread over years has been required. Less than a century ago anything like the scientific weather records of the present day

were unknown so that the study of meteorology is really very much in its infancy. The most baffling question of all which faces the meteorologist is the nature of the agencies which are at work in producing the various types of weather. We can tell a few hours, or even possibly a day or two ahead, what the type of coming weather is likely to be, but of the root cause of the conditions we know little or nothing. It is believed, and with a good deal of reason, that the strength in the flow of the Gulf Stream may modify the British climate. When the current of warm water is strong our winters would tend to be mild; if the flow of the Gulf Stream slackens, then severe conditions visit these islands. Why, in some years, the Gulf Stream is more vigorous than in others we do not know and it is possible that the happening may be controlled by a variety of factors.

THE CLIMATE OF THE BRITISH ISLES.

In not a few parts of the world weather study is a much more simple matter than it is in the United Kingdom. It is often stated that in Egypt, for instance, people become tired of talking about the weather just because for long spells it is uniformly fine and bright. As a matter of fact at the beginning of the Egyptian summer the official weather bureau gives notice that forecasts will be suspended for the season simply because any kind of a break in the weather is almost inconceivable. In many tropical countries the year is divided into wet and dry seasons and these often occur with remarkable regularity and maintain their character with only the smallest variations. In the British Islands the case is altogether different. There are many parts of the world in which the climate is worse than the British Islands. Indeed, when the lack of extreme types of weather are considered, the dwellers in the United Kingdom may be considered to be fortunate. But, in the matter of variability there are few climates that can equal that of the United Kingdom. In many temperate countries there is rarely a summer season that does not bring with it long spells of hot dry weather, whilst a winter with frost and snow is equally a probability. As far as the British Islands are concerned, summer may be little more than weeks of wet cheerless weather when the sun is conspicuous by its absence. The winter months may pass with little frost and snow and the genial conditions maintain a green countryside when lands a good deal farther to the south are ice bound. The traditional story of the American who said that in England there was neither summer nor winter is not very far from the truth when it is considered what these seasons bring in most temperate countries. It is only by considering

the position of the British Islands that one can at all understand the peculiar character of the climate. All the world over, islands are likely to have more equable climates than are to be found on the continental areas. This is due to the moderating influence of the ocean which surrounds the island. In a general way the sea, which will be comparatively warm, sustains the temperature of the island in winter and acts as a cooling influence in summer. The insular climate is most pronounced when the island is situated at a considerable distance from a continent. But the British Isles, although entirely surrounded by water, are very close to the continent of Europe. In fact, in a geological sense, it is only a short time since they were actually part of the mainland. As far as the eastern part of Great Britain is concerned, at any rate, we have only just missed the continental climate with its hot summers and cold winters. Often when the weather is mild and rainy in London, the conditions are extremely rigorous in Holland less than two hundred miles away. The British climate is largely controlled by the moist warm air currents which come from the vast Atlantic Ocean. In every month of the year, with the exception of April and May, the south-west winds predominate which, whilst they bring variable conditions, ensure the genial conditions which are such a feature of our climate.

THE DIFFICULTIES OF WEATHER FORECASTING.

The meteorologist who undertakes to forecast the weather in the United Kingdom is faced with special difficulties. As has been indicated, most of our weather comes from the west and it is in this direction that it is most difficult of all to secure reports from a long distance. As will be described later, wireless weather messages are regularly received from Atlantic liners, but until lately these have not quite the same value as a report issued from a land station. Those who visit the United States are often amazed at the accuracy of the weather forecasts especially in the eastern states. This is owing to the fact that the Central Weather Office is continually receiving reports from numerous land stations to the westward across the whole of the great continent. So wonderfully correct are the daily forecasts in many districts of America that agriculturalists rely on them to a greater extent than in any part of the temperate world.

During the last few years, however, the British Meteorological Office has been able to extend the area from which regular reports are received to a notable extent. This has been largely due to the rapid extension of wireless telegraphy, that wonder of the age which

is linking up the most distant places on the earth. Only about ten years ago the officials had to prepare their forecast on the strength of reports received from a certain number of stations in the United Kingdom and a comparatively small group of observatories on the Continent. Then, as the development of wireless proceeded, ocean liners started sending weather information. In those early days when the sending of direct messages by ships was often a difficult matter there was frequently a long delay before the information reached headquarters. This would often very much depreciate the value of the notification as far as its usefulness in making a forecast was concerned. The modern Meteorological Office, with its headquarters at the Air Ministry, is in a vastly different position. It is able to avail itself of reports from hundreds of stations in Europe and Northern Africa which are sent out by wireless at stated times. As an illustration one may mention the case of Norway, a country from which, not so long ago, only a limited amount of weather information was received. To-day twenty or so stations despatch weather information. In addition wireless messages are sent out at definite periods by Norwegian ships traversing the North Sea and also those on the Atlantic. Three stations in Norway collect information from the upper air by means of pilot balloons and this information is duly issued. What is true of Norway is also true of practically every other European country at the present time, including most of the new states which sprang into existence after the War. Seeing that the weather conditions in the Atlantic Ocean are of such importance to British folk great attempts have been made to perfect a system of securing information from liners. Wireless communication has now advanced to such an extent that the great ships are always in touch with the land. At regular times it is thus an easy matter to despatch information as to the state of the weather prevailing in the particular part of the ocean where the observations are made. These reports prove simply invaluable to the forecaster for he has ample warning of any storms which may be brewing over the great waters. Indeed, in all ways, each year that passes increases the amount of information received by the Meteorological Office from land, sea and air. Wonderfully accurate as the forecasts are at present it is likely that they will be even more reliable in the course of the next few years.

WIRELESS WEATHER INFORMATION.

A very important development in connection with the development of wireless telegraphy is the employment of this means for

the distribution of weather information. A pamphlet has been issued by the Meteorological Committee to explain the services which are available to those having a wireless receiving set. From the information issued it is possible to find out many particulars about the weather and, most important of all, what the conditions are likely to be during the next twenty four hours, or even for a longer period. The simplest class of information is known as the "general inference" and this is in plain non-technical language such as anyone could understand. The messages are sent out from the Air Ministry at 9.15 a.m. and 8 p.m. The inference tells how the changes in the weather situation are likely to affect the whole of the British Isles. It is necessary to bear in mind the general character of the information, but, if this is applied to the local weather of an individual district, some very valuable results are secured. To make good use of the simplest information sent out one need not be a meteorologist at all, although in this, as in most matters, the more complete one's knowledge the better. It should be remembered that there are many low priced highly efficient receiving sets on the market. The approximate cost of such an installation need not be more than about £30. Running expenses are trifling seeing that a continuous electrical supply is not essential. Accumulators necessary for valve-filament lighting, etc., can be charged by a local garage or other convenient source of supply. Still further possibilities in the way of wireless weather news are opened up by the rapid developments of wireless telephony. In addition to the broadcasting of concerts and entertainments some stations distribute the latest weather forecasts. It can hardly be long before arrangements are made to broadcast more weather information from official sources and, in this way, make it much easier for ordinary folks to receive the messages. Many people have hitherto refrained from taking up wireless telegraphy because it is needful to learn the Morse code, a matter which perhaps appears to be more difficult than is really the case.

FORECASTS FOR FARMERS.

All those who are interested in agriculture should certainly take advantage of the service of special forecasts which are issued by the Meteorological Office. These telegraphic messages are despatched in several forms. In the first place the notifications of spells of settled weather often prove of great value. The message tells the recipient when a period of fair settled weather is anticipated and, from time to time, information as to the probable continuance

of the spell is sent out. A warning as to the break up of the fair period is sent as long in advance as possible. No better way of illustrating the scope of this service is possible than by giving a specimen of some telegrams which have actually been despatched :

First Telegram.—Fair weather spell anticipated.

Second Telegram.—(2 days later): Conditions less settled, perhaps some showers.

Third Telegram.—(following day): Break only temporary.

Fourth Telegram.—(2 days later): Becoming unsettled, rain expected during the night or to-morrow ; spell terminated.

In this case a fee of 6d. is charged for each telegram dispatched in addition to the Post Office charges for telegraphy. A minimum sum of 7s. 6d. must be deposited at the Meteorological Office against which the charges are booked.

The issue of daily forecasts at certain times of the day all the year round is an important feature. These forecasts are issued at the following hours : 10 a.m., 3.30 p.m. and 8.30 p.m. in the winter and 10.30 a.m., 4 p.m. and 9 p.m. (Summer Time), in the summer. Those forecasts issued at the morning hour refer to the period covering the afternoon of the day of issue and the morning of the following day. Those sent out in the afternoon cover the whole of the following day. On every occasion, with a forecast, is included a further outlook of the probable weather beyond the twenty-four hour period whenever it is possible to give the extended prophesy. If at any time the conditions indicate that a spell of several days of fair weather is likely a notification of this is included in the next regular telegram. Daily forecasts for single districts can be sent by telegraph for periods of not less than six consecutive days to any address in the United Kingdom on the payment of a fee of one shilling and the cost of telegraphy which is computed to be about one shilling and threepence. At any time the Meteorological Office will send by telegraph forecasts in anticipation of special conditions such as frost, ground frost, etc. If the time of sending the telegram is left to the discretion of the officials, a fee of 2s. 6d., which includes the cost of the telegram, is charged. To illustrate the comprehensive nature of the forecasts issued, the table overleaf is of interest.

THE UNSCIENTIFIC OBSERVER AND THE WEATHER.

In the foregoing pages an attempt has been made to outline the assistance which the trained observer is able to give to the public in the matter of weather forecasting. Stress has been laid on the

The following is a specimen of the forecasts issued :—

DISTRICTS.	FORECASTS FOR THE 24 HOURS, Commencing Midnight.	The Further Outlook.
1. South-Eastern England ..	Light breezes.	Continuing fair for some days.
2. Eastern England ..		
3. Eastern Midlands ..	Fine: rather warm	
4. Western Midlands ..		
5. South-Western England ..	Westerly breezes. Fair generally. Moderate temperature.	None issued.
6. South Wales ..		
7. North Wales ..	Moderate South-Westerly Winds. Cloudy, occasional rain. Rather cool.	
8. North-Western England ..		
9. Northern Midlands ..		
10. North-Eastern England ..		
11. Eastern Scotland ..		
12. South-Western Scotland ..		
13. Isle of Man ..		
14. North and North-Western Scotland ..		
15. Hebrides ..		
16. Orkneys and Shetlands ..		
17. North-Western Ireland ..		
18. North-Eastern Ireland ..		
19. South-Eastern Ireland ..		
20. South-Western Ireland ..		

importance of realising the way in which our climate is affected by influences far distant from our shores. But, after all, for practical purposes, the state of the weather is always very much a local interest. The farmer in the midst of his haymaking is naturally most anxious to learn what is going to happen in his own district and is not greatly concerned about the conditions elsewhere. Owing to the astonishing way in which weather may vary locally the value of an official forecast is bound to be limited. Always the actual features of the district will have an important bearing on the condition experienced, as a simple illustration will show. The general state of affairs may indicate frost, yet its severity, or even its occurrence at all, will depend upon the situation. In a valley with the air in a stagnant state the cold layers are constantly gravitating downwards so that, during the night, a veritable pool of air at an extremely low temperature is the result. Only a short distance away on the higher ground, where there is rather more air movement, the temperature may not reach freezing point at all, or at any rate the degree of cold will be very much less. Instances to show how intimately the actual weather in any district is modified by local conditions could be multiplied almost indefinitely, and it is this fact which should make every farmer take up the study of the local climate even though he has little scientific knowledge and few instruments to aid him. It may be of interest to offer a few hints to the weather student who has to rely to a large extent on what he can read in the face of the sky.

METEOROLOGY WITHOUT INSTRUMENTS.

Anyone making a study of the weather should certainly keep a note book. Twice each day at a fixed time, *e.g.*, 9 a.m. and 9 p.m., in the morning and in the evening there should be placed on record the state of the weather. In the book there should be noted the direction of the wind, the fineness or otherwise of the conditions, the appearance of the sky, and any other facts that seem of interest. If a barometer and a thermometer are available the readings from these instruments should also be entered. In course of time the simplest weather note book, regularly kept, becomes of the utmost value. In looking back it is noticed that, quite often, there is a definite sequence in the weather conditions which follow one another. The observer will in due course be able to make forecasts and it is most important to write these down. When the period over which the prophesy extends is at an end place on record the weather conditions which were actually experienced.

In preparing the forecasts one would make free use of any official weather intelligence such as is to be found in the newspapers or is received in any other ways. The local knowledge combined with information gathered from a wider area will enable the amateur meteorologist to prepare his own forecasts with a surprising amount of accuracy.

CLOUD STUDY.

In the forecasting of weather, cloud observations are of very great importance. The types of clouds most commonly seen may be classified as follows :—

Cirrus. These are very delicate feathery formations which are situated at a high altitude. Cirrus clouds look like hair or feathers and are popularly known as mare's tails.

Cirro-stratus. This is a thin film of cloud, often stretching over the whole of the sky. Through the cirro-stratus the sun and moon are dimly seen and halo effects are common.

Alto-cumulus. This is the mottled or mackerel sky.

Strato-cumulus. This cloud often covers the whole sky without producing rain. It is very common during east winds and, now and again, patches of bright blue sky are to be seen.

Nimbus. This is the rain cloud and is formed of thick layers of dark grey clouds commonly with ragged edges.

Cumulus. Wool-pack clouds. These are usually very handsome clouds like snow-capped mountains. When the cumulus clouds are on the side where the sun is shining they become black and have silver linings.

Cumulo-stratus. This cloud is always associated with showers and often thunder. The tops are white, but towards the base dark layers of stratus clouds are plainly seen.

Stratus. This is the fog cloud. When high it is usually productive of gloom. Owing to the way in which the stratus cloud collects smoke particles it will often bring about darkness in large towns. A good example of this is seen in the case of the London fog. In the country the stratus cloud, when low, is nothing more than a white mist.

To get an idea of the bearing which the types of cloud have on coming weather it is necessary to do more than just observe the particular kinds which happen to be in the sky. A very little study will shew that a great deal depends on the way in which the clouds behave. The cirrus cloud is commonly associated with fine weather and this is nearly always the case when the feathery wisps gradually melt away leaving the sky a uniform blue. If the cirrus clouds are fan-shaped and stretch up from a base on the horizon and, moreover, they do not decrease this is almost a certain sign of rain and wind. As time goes on the cloud formation increases in extent until it changes into cirro stratus so that the whole of the sky is covered with a sheet. This becomes more and more dense as the nimbus or rain cloud develops. The cirro-cumulus or mackerel sky is a type from which much useful information as to coming weather may be gathered. Generally speaking the cirro-cumulus clouds, especially when they tend to gather closely together, are a sign of bad weather approaching. Where the masses of cloud are much detached and there is an increasing amount of blue sky between them fine weather for a prolonged period is almost a certainty. As has already been indicated cumulus clouds are usually associated with fine dry weather especially in the summer. It is an excellent sign when this type of cloud has well defined edges and a flat base. In settled weather cumulus clouds should decrease in size after noon. If they increase it is likely that the cumulo-stratus type of cloud will not be long in developing. When these clouds have gleaming white tops and copper coloured centres merging into a black underpart, rain and hail, often accompanied by thunder and lightning, are highly probable. In a general way it may be taken that, fantastic, angry looking clouds are a sign of bad weather. The appearance of clouds with misty or ragged edges is a sure sign of the near approach of rain. On the other hand where the edges of the clouds are clearly cut it is highly probable that the clouds will pass over without discharging their contents.

WIND.

The study of the wind is an important matter for the meteorologist. Without elaborate apparatus it is impossible to estimate, with accuracy, the strength of the wind, but it is a simple matter to observe the direction from which it is blowing. Even if there is not a vane, the way in which smoke drifts from a chimney will be all sufficient to give the needful information. It is very desirable to determine the points of the compass with exactness. Often when

the wind shifts only a point or two it may make all the difference to the weather. If a westerly* wind veers only slightly to the northward there is quite soon a sharp drop in temperature and a clearing of the sky. To discover the position in any locality it is most desirable to employ a compass. It is well to remember that the true north and the magnetic north are not identical. Generally speaking, for the British Isles, the line shewn on the compass as N.N.E.—S.S.W. is the nearest to the true astronomical line of north and south.

HALOS.

Those who, like the average farmer, must spend a good deal of time out of doors have excellent opportunity for studying halos and parhelia (Mock suns). Recent investigation has shewn that these are really quite valuable as giving indication of coming weather. Such phenomena may occur at any hour and in any season, but they are most common of all in the months of March and April. Halos are large circles seen round the sun or moon when cirro-stratus clouds exist. As a rule the rings are colourless, but now and again the prismatic tints are developed. The halo should not be confused with the coloured cloud rings known as coronæ, in which the tints are in the same order as that of the rainbow, the violet being inside and the red outside. The halos most commonly observed are of two kinds, one the more usual being of a 22° radius and the other of 46° . Occasionally additional circles appear and where these intersect the primary halo the illumination is much more brilliant and the so-called mock suns appear.

Halos are caused by the refraction of the light through the minute ice crystals of which the cirro-stratus cloud is formed. As a rule in our latitudes a halo is a sign of unsettled weather and often it heralds the approach of a storm. It shows that a quantity of moist air is present in the upper strata of the atmosphere. This has probably been produced by the outflow from an area of barometric depression not far away which, as it advances, will cause a storm. Curiously a plain coloured halo, for reasons which have not been clearly explained, is often typical of fine settled weather. There are many cases on record where the appearance of this phenomenon has been followed by several weeks of settled conditions.

THE BAROMETER.

So many people own barometers that remarks on the value of this instrument to the unscientific observer may not be out of place.

It should never be forgotten that the barometer is merely an instrument for telling the pressure of the atmosphere. In common language when there is much moisture in the air the pressure is reduced and the barometer falls and, on the other hand, a relative amount of dryness increases the pressure and the glass rises. Roughly the former state of affairs will mean unsettled conditions and the latter fine weather. Quite often, however, the actual weather conditions prevailing appear to be at variance with the indications of the barometer. The trouble largely arises from the fact that ordinary folk pay far too much attention to the words which are usually to be found on the face of the barometer. Quite likely it may be pouring with rain when the glass points to fair and, on the other hand, fine quiet weather may be experienced with the mercury standing at unsettled. These happenings do not necessarily shew that the instrument is unreliable, but they do indicate that the reading at any time must be taken in a relative sense. Thus, when the barometer is low, and yet the weather is fine, it may be taken that one is some distance away from the centre of the disturbance where the readings would be much lower still. In spite of the fact that the barometer is not to be regarded as an exact guide to the weather the instrument may be of great service even to the unscientific observer. Naturally the glass should be set once in the twenty four hours, preferably in the evening. It is well to adhere to a definite time, such as nine o'clock. As opportunity offers during the day it pays to watch the barometer in order to gain an idea as to coming weather. After a long spell of settled weather the barometer will often give useful indications of the approach of a change. The mercury, which has been very steady for a long while, starts to fall. The downward tendency may only be slight and in the course of an hour or so it is arrested. In this case no break in the weather is to be expected. If the fall persists it is a sure sign that a break in the weather is coming. Quite good indications of what the glass is going to do may be gained by a close examination. In the case of an instrument where the mercury is visible look at the top of the column. If this is rounded outwards the barometer is tending to rise. Where a fall is coming the top of the mercury column is depressed. With a banjo type of barometer a light tap will cause the indicator to move in the direction which it is about to take. Aneroid barometers should never be tapped at all seeing that they are very delicate instruments easily put out of order. Such a saying as "Long foretold, long last, short notice soon past" will be found to be wonderfully true. Again "Fast rise, after low, foretells stronger blow" is also commonly proved by actual experience. In a general

way a falling barometer, especially in the winter, associated with a rising thermometer are indications of rainy unsettled weather, whilst when the happenings are reversed settled conditions may be expected.

THE WEATHER PRESERVES ITS CHARACTER.

One point which it is well to bear in mind when making any attempt at a forecast is that the weather has a tendency to preserve its character. This is not to say that the longer a certain type continues the less is the likelihood of a change. It simply means that if one type of weather has been experienced for a week, for instance, there is a greater probability that the next two days will be somewhat similar than that they will show a radical change. A small amount of observation will prove that a long spell of any particular kind of weather rarely breaks up suddenly there, being, as a rule, several intervening days during which the conditions change over. An exception to this commonly seen after a prolonged frost, when the thaw comes with great suddenness and, in a few hours, the temperature may rise many degrees above freezing point.

THUNDERSTORMS.

Thunderstorms are of special interest to the farmer on account of the fact that they commonly bring with them heavy rain which may seriously interfere with haymaking and harvest operations. Electrical disturbances are amongst the most uncertain phenomena in our variable climate. It is quite a common experience for a violent thunderstorm to visit a certain district and, only a few miles, distant nothing happens at all. In no type of weather is a knowledge of local conditions more useful than in the case of the thunderstorm. Ranges of hills certainly seem to play a part in diverting the course of a storm as is expressed in the common saying that the "high lands draw the clouds." On the other hand electrical storms, which have settled over a valley, are often very protracted and will burst out again and again with great violence. On the whole thunderstorms are less severe in well wooded country than where there is an absence of trees. This is probably due to the fact that the trees facilitate the passage of electricity between the clouds and the earth, and there is less risk of those intense accumulations which are evidenced in the lightning flash. The eastern and central part of England is much more visited by thunderstorms than the western counties. Towards the western seaboard the thunderstorms are chiefly of the cyclonic type and these are associated with the stormy

weather which comes in from the Atlantic in the winter. Many districts are remarkably free from thunderstorms and others suffer to a considerable extent for no very clear reason. One curious point which the observer will soon find out is that thunderstorms have a habit of approaching a certain district largely from one quarter. Some years ago the writer lived in the Thames Valley and, during a number of years, he was only able to record one storm which developed from the east. All the other storms started in the west. His experiences at the present time in a south coast town are just the opposite. Any storms which originate in the west either do not actually visit the town at all or are of only slight duration. On the other hand a storm approaching from an easterly direction is almost sure to develop on more or less severe lines. The common idea that thunderstorms come up against the wind is true in this sense. Frequently at such times, the air current is blowing in one direction on the level of the earth and the storm clouds are travelling on a current at a higher altitude which is blowing in a opposite direction. Where the thunder clouds travel on a wind which is blowing in the same direction as that on the earth the storm is rarely of long duration.

LONG DISTANCE FORECASTING.

One of the most fascinating problems which the meteorologist has to consider is the possibility of long distance forecasting. Nowadays the official forecasts are supplemented with a further outlook. This may cover a period of a few days but, beyond this, there is at present no likelihood of any advance. It seems possible to trace a certain sequence in the weather in the sense that one type is often followed by conditions of an opposite character. At the moment of writing (the last week in the year 1922), after many weeks of a high barometer with dry quiet conditions the weather has definitely broken. It is reasonable to suppose that, during the next month or so, -we shall experience low barometrical readings with rather mild rainy weather and that we shall not have a long severe winter. Whether this forecast will be borne out by the actual happening will be known by the time this book is in the hands of the reader. Some of the old weather sayings which bear on the weather ahead of us seems to have some basis in fact although, in many cases, it is difficult to offer a scientific explanation. An illustration is the saying that in whatever quarter the wind is at the turn of the days from thence will it chiefly blow during the ensuing three months. A good deal of observation appears to shew that there is something

in the idea and your countryman can at least point to the fact that the saying is quite often justified by the actual happening. Another idea that we never experience a really severe winter save after a wet autumn is probably capable of the following explanation. When there is an excessive amount of moisture in the soil this has a chilling effect which is absent when the ground is comparatively dry. The last very severe winter occurred in 1895 and this was preceded by heavy floods in the previous autumn. The same heavy rainfall was recorded in the fall of 1890 and was succeeded by an Arctic winter. Shorter spells of keen frost have often occurred after a week or so of extremely wet weather. The idea that the moon possesses some influence on the weather is very widespread. A table, often to be found in almanacs, attempts to shew that, according to the time when the moon changes, so will the weather be during the succeeding month. This table which has generally been attributed to the great astronomer Herschel (although there is no clear evidence that he was responsible) seems to have very little to recommend it in the way of accuracy. It has been tested again and again and has been found to be unreliable, yet it must be admitted that there are still a good many people about who consider that there is a good deal in the idea. An even more extraordinary conception about the moon is the one which tells us that if the satellite is "on her back" during the new moon and the first quarter there is sure to be a spell of rainy weather. This idea is manifestly absurd seeing that at definite periods of the year the moon is always in this position. When the moon is apparently vertical over the sun after sunset or before sunrise, as she is bound to be at certain times of the year, she will always appear to be on her back seeing that she is then illuminated from the underside as seen from the earth. Whilst considering the question of the moon and the weather it may be interesting to refer to the idea that the full moon "eats up the clouds." Why this should be so is not known, but it is a curious fact that the clouds nearly always disappear to a large extent when the moon is full or nearly so. The point is of some importance to fruit growers for, with the absence of clouds at such times, the radiation of heat from the earth goes forward freely. Hence if any precautions are needed for the protection of fruit blossom the time of the full moon may always be considered to be a danger period.

IV.—WEST COUNTRY ORCHARDS AND THEIR POSSIBILITIES.

By Prof. B. T. P. Barker.

There was a time when the farm orchards of the West of England were celebrated as centres of production of apples and cider of the finest quality. To-day, and indeed for more than a generation back, their reputation has sadly diminished and their condition has become such that they have collectively acquired notoriety as examples of neglect and bad practice. Here and there are to be found exceptional cases to demonstrate the capacity of the district to hold its own against any competitors for the quality of its produce and these serve but to emphasize the general regrettable failure to grasp the rich opportunity which Nature has provided. Much has been said and written during late years of their deplorable condition and in as recent an issue of this Journal as the 1919-20 volume a fairly detailed summary of the orchard survey initiated by the Ministry of Agriculture in conjunction with the National Fruit and Cider Institute was included in the Annual Report contributed by the latter body. It is thus unnecessary here to dwell on this unsatisfactory side of the subject.

The primary object of this article being to consider the place of farm orchards among the possible sources of supply of home-grown fruit for the future, one need only consider the causes of their present condition in so far as they are of direct bearing on the main subject in hand. To obtain a proper perspective of the position it may be helpful to glance briefly at the history of the farm orchard system in this country.

THE DEVELOPMENT OF THE FARM ORCHARD SYSTEM.

The facts about to be recorded on the rise and fall of the West-country orchards are mainly taken from that admirable work "The Herefordshire Pomona," edited by Drs. Hogg and Graves Bull, which embodies the results of the enquiries set on foot by the Woolhope Naturalists' Field Club in the late seventies and early eighties of the last century as a part of its effort to improve the standard of farm orchards and restore the commercial position of their products.

According to that work, it was not until the end of the seventeenth century that English orchards began to be much planted. In Normandy for the previous three or four centuries similar orchards

were being freely established and they doubtless served as examples for this country. When, about the date specified, Continental wars prevailed for the most part and foreign wines ceased to be imported freely, it became an object of national importance to encourage the home production of alternative beverages in every possible way. Cider and perry thus came to the fore.

Quoting the treatise named, "Poets and writers extolled their praise: esquires and yeomen vied with each other in their efforts to meet the national want: and the great care and attention resulting from all this enthusiasm culminated in a success so remarkable as to outstrip all former efforts and to make us lament the more the neglect of later years. Cider and perry were then made in large quantities of a more uniform superior quality; and met with a ready and highly remunerative sale. They formed the household family drink, varied on festive occasions with home-made wines, on the excellence of which all good housewives prided themselves. The farm labourers, or hinds, who were at that time usually boarded in the house, had to be content with 'Ciderkin,' or 'Purr,' a weaker cider, made by the addition of water to the apple cake, as it was passed again through the mill. This was allowed to the men in almost unlimited quantities during haytime and harvest, and formed a wholesome and harmless drink.

This was the golden age for orchard culture and for orchard produce."

The boom in orcharding was not destined to last. The turn of events in this country and on the Continent in due course made the need for essential food production paramount and corn growing and cattle raising became so profitable that the farmers' attention was directed more and more to them at the expense of the orchards. The latter began to be regarded by many as a nuisance, since close attention was required to keep them in good condition and their returns in the shape of yield varied widely from year to year. A similar lack of attention to cider and perry making resulted in marked deterioration in the quality and value of those products, which soon on that account became difficult to sell at remunerative prices and were given more freely to the labourers on the farm with consequences thoroughly unsatisfactory. During the intervals of war, foreign wines began again to be imported in increasing quantities and the trade in cider became even more difficult in the face of this serious competition.

With the diminished value of cider and perry the farm orchard grew all the more to be a white elephant to the busy farmer. The trees were allowed to grow untended: replacements, when they had

to be provided, were made with any trees most ready to hand, frequently of worthless varieties or of seedling stocks which had never been worked. In this manner the condition of the orchards quickly deteriorated and the sorts of apples and pears grown, instead of representing a well-balanced selection of a few valuable varieties, formed in many cases little better than a haphazard mixture of chance seedlings.

The orchards having passed into that state of degeneracy by the middle years of last century have since maintained a struggle for existence under that handicap, and it is perhaps more a matter for surprise that, with the average farmer in no sense a professional fruit-grower, there are to be found to-day some so good as they are than that the condition of others is so deplorable. The situation has undoubtedly been saved from complete collapse by two factors. In the large centres of population an increasing demand for fruit has developed and the apple for dessert and culinary purposes and for jam-making is being more used now than ever before. At the same time the cider industry after many years of depression has during the last generation developed new life and can see in prospect a great future. For its revival it is in no small degree indebted to the efforts of the Bath and West Society, through the initiative of which the experiments in cider making at Butleigh Court were started in the early nineties of last century and whose support of that work has been consistently maintained since it was transferred to the National Fruit and Cider Institute.

The past history of farm orchards thus teaches that in the average case the attention and interest given by the farmer correspond largely with the demand for their produce. With him it is a matter of pure business. If he can be convinced that his orchards are not less remunerative than the other parts of his farms he will be prepared to devote to them an equal degree of energy and care. That neglect under such circumstances would be entirely obviated is not to be expected any more than that a general standard equal to one which would satisfy a professional fruit grower could be attained. The farmer's attention is spread over a variety of crops and operations and the finished skill and knowledge of the specialist in fruit culture are to be acquired only by concentration on the subject. But a very marked improvement on the present standard might confidently be anticipated if it were demonstrated beyond question that there is a remunerative future for grass-orchard-grown fruit.

Some indication of the possibilities of profit from grass orchards has recently been afforded. Just as in the past the fortunes of farm orchards have been related to great European wars in which

this country has participated, so during the recent great war the abnormally high prices realised by the produce of farm orchards have caused many to appreciate the fact that an orchard of bearing age is an asset of greater potentialities than suggested by pre-war conditions. Hence one finds to-day individual attempts in progress throughout the orchard counties to renovate on lines which appear most promising. For the most part the policy in favour is to regraft suitable trees with the most popular varieties of culinary and dessert fruit. To some extent this policy was establishing itself before the war. The latter has accelerated rather than initiated it.

Apart from the stimulus due to the increased demand and higher prices under war conditions there are at least two other factors at work in bringing about a changed attitude to the orchards. In the first place, the breaking up of large estates has resulted in many farmers becoming the owners of their orchards. In the second place, the practice of making cider on the farm for the use of the labourers is rapidly dying out and accordingly cider fruit is unwanted by the farmer except in occasional instances where he carries on a remunerative cider-making business. Add to these the influence of the present depressed condition of agriculture in directing attention to any phase which can be made more profitable, and it will be seen that a very definite movement in the direction of orchard improvement is not unlikely.

LINES OF FUTURE DEVELOPMENT.

The experience of the past has shown that unless foresight is used in deciding the character of farm orchard development a period of neglect will ensue when the produce loses its market value. Hence the question of the right policy to adopt for farm orchards is one which calls for very careful consideration just now. While that must be decided by each individual according to the local circumstances of his case, it may prove helpful if the more general aspects are briefly reviewed.

In discussing the part which the farm orchard can play in fruit production in this country it may prevent possible misconception, if the limits of the term "farm orchard" as here used are defined. It is restricted to grass orchards of standard trees, which form only the minor portion of the farm holding, the remainder of which is devoted to other branches of agriculture. The grazing afforded by them is normally used for the stock on the farm. As thus defined, they permit us to exclude from consideration commercial fruit farming as commonly understood and the professional fruit grower. We

are concerned solely with a class of men who cannot give more than part-time attention to their orcharding; and the latter does not constitute in general their main source of income.

In a farm orchard of this class no modification in general scheme can be suggested. The presence of grass in the form of permanent pasture is a characteristic feature which could not be dispensed with unless the farmer was prepared to specialise to such a degree in fruit culture that he would pass outside the class we are considering. The fact that grass checks the growth of the trees and under some conditions permanently stunts or may even kill them is recognised as a definite handicap. Fortunately under West of England conditions of rainfall and soil the injurious grass effect is very much less marked than in drier regions and on lighter soils and it is not unlikely that the presence of grass under these conditions renders the orchard often more productive than it would otherwise be. At the same time there are probably many farm orchards, especially on very light or very heavy soils, which are in bad condition primarily through toxic grass effect. No remedy short of tillage will provide a permanent improvement in those cases and the sites should be regarded as unsuitable. The effect of grass on a newly planted tree appears to be more pronounced than on one already established and it is a wise precaution after planting trees, even on soils where grass effect is not obvious, to keep an area of some 6 feet in diameter around the base of the tree free from grass for the first three or four years after planting. The grass effect extends to the fruit as well. Colour is more intense, size somewhat reduced and maturity hastened. The former point is generally an asset from the market point of view: the others may or may not be according to the particular case. In any event, however, it must be accepted that the culture of the trees in grass involves certain effects, both on growth and fruit, which are considerable enough to render the orchards unprofitable in the less favoured spots.

In most farm orchards in the West only apples, and occasionally pears, are grown. In a few localities plums—generally some local variety—damsons and cherries are included with varying success. There seems no reason why these stone fruits should not be grown more extensively on suitable soils, although particular care in the selection of varieties will be needed. The Blaisdon Red plum may certainly be regarded as having fully justified its position in the farm orchards of parts of Gloucestershire and the experience of that county encourages further trials of that and other varieties over a wider area. As a form of fruit for market purposes the plum and other stone fruits are, indeed, in some respects more suitable

for farm orchard culture than either the apple or pear. Questions of grading, packing and storage do not, for example, arise to complicate matters to the same extent.

The form of trees suitable for farm orchard culture is determined by the character of the orchards. In general, standard trees with good stems not less than $6\frac{1}{2}$ feet in length from ground level to the point of origin of the lowest branches are necessary. A grass orchard possesses definite grazing value and trees with shorter stems than those indicated impose limitations as to the nature of the stock which can be turned in and thus restrict the value of the orchard in this respect. Since many varieties are not sufficiently vigorous in growth to form satisfactory stems of that length, it is preferable to head-graft such sorts on established trees of stronger habit, when it is particularly desired to include those varieties. There are several kinds of apples which make standard trees of excellent strength and habit for re-grafting, notably Morgan Sweet, Bramley's Seedling, Newton Wonder, Court Royal and Sweet Alford. It is, however, a sound rule to reject for farm orchard work all varieties which lack vigour to make a good standard tree on their own stems; only for very special purposes is it worth while departing from it. In exceptional cases, where only sheep are to be grazed, shorter trees approaching the half-standard type can be used if upright-growing varieties are selected. They present fewer difficulties for fruit picking and general control, but by limiting the usefulness of the orchard for grazing are less suitable for the farmer than the fruit grower.

Existing orchards present many examples of mistakes as regards the planting distance of the trees. Thirty feet from tree to tree should be accepted as the minimum distance; on good soils the stronger-growing varieties may with advantage be allowed at least from thirty-five to forty feet. It is a common practice in Normandy to plant the rows still wider apart, it being considered that any reduction in the fruit crop resulting from the smaller number of trees is fully compensated for by the improvement in the quality of the pasture and the health and vigour of the trees themselves. This practice deserves further trial in this country than has yet been given it.

An established farm orchard normally receives little cultural attention. Fortunately little is needed. Manurial treatment other than that supplied by grazing stock is wanting. Phosphatic and potash manuring may be worth consideration to improve the herbage and indirectly enrich the soil. Pruning in the case of established trees can be reduced to the removal of superfluous

wood. Spraying and other measures of disease and pests control are generally ignored. The nature and value of the crop obviously determine the cost which can be economically incurred in this direction. An occasional winter washing with one of the dormant season sprays to destroy moss and lichen represents possibly the limit which a crop of cider fruit can carry. Grease-banding in districts where winter moth is abundant may return more than its cost. Beyond these treatments little is practicable owing to the calls of other work on the farm.

With this survey of the character of a farm orchard in mind one may now proceed to consider the position it can be expected to take in respect of fruit production. The case of apple growing may be taken as an example.

It is obvious at the outset that the farmer cannot compete on equal terms with the professional fruit-grower in the production of fruit of the highest quality for table purposes. He is not a specialist in fruit culture nor, even if he possesses the necessary knowledge and skill, has he the time available to get the best possible results. On the other hand he starts with some important compensating advantages. The costs of production are practically negligible after the orchard is once established; a crop failure, whether complete or partial, in a bad season thus involves no actual loss, since the value of the grazing should at least cover the rental value of the land. Moreover, as the results of the competitions at the Imperial Fruit Shows at the Crystal Palace in 1921 and 1922 prove, it is possible to produce fruit under grass orchard conditions which can hold its own with the best from commercial fruit plantations. Maybe the quality of the bulk is somewhat lower: the fact remains that a portion of the crop of a well-tended farm orchard in the Western Counties can reach the best standard. It does not of course follow that this result can be attained in any farm orchard which is given proper attention. When over a large tract of country practically every farm possesses orchards, some of the latter must be less favourably situated than others and the results must be inferior: but it can be claimed that there are many so favoured by local conditions that fruit of very high quality can be grown. It is no matter for surprise, therefore, to find a distinct tendency towards the culture of commercial varieties of table fruit in farm orchards in place of vintage fruit. The prices realised are so much higher that the proposition is attractive in spite of the greater expense involved by hand-picking the crop and the costs of marketing in suitable packages. The question thus arises as to whether under these circumstances the farmer ought not to be encouraged to concentrate

on the production of high-grade fruit for table use in cases where local conditions are sufficiently favourable. The right answer appears to be that it depends mainly on the farmer himself. In arriving at it one needs to look ahead and attempt to forecast what the situation will be as regards a market for fruit some years hence, when the effect of changes made now in orchard practice will be beginning to tell.

It seems certain that the movement to compete with imported apples by the adoption of standard methods of grading and packing—which is already recognised by the leading associations of fruit growers as vital—will develop and spread among individual apple growers. A time will surely come in the not-far-distant future when apples for table use will stand little chance of realising remunerative prices unless properly graded and packed. Fruit of inferior grades or badly packed is likely to command very poor prices and may be almost unmarketable. In addition, more attention is being given to the kinds of varieties offered for sale and there is a distinct tendency towards the position where in a normal season there will be a free market only for sorts which are well-known to the consumer. The future of apple growing for the table market would thus appear to rest with the man who confines himself to the growing of a few popular varieties, grades his produce carefully, adopts standard methods of packing and finds a profitable outlet for the residue of low grade fruit. It follows that his returns will correspond with the proportion of high to low grade fruit which he can produce and that will be determined very largely by his skill as a fruit-grower. Such operations as spraying and other methods of pest and disease control become an inevitable part of his cultural routine.

Applying these conclusions to the particular case of the farm orchard, what is the position? It is unlikely that from trees grown in grass the proportion of high to low grade fruit will compare favourably with that for trees in cultivated ground. Spraying large standard trees is an operation entailing the provision of expensive equipment and one which, to be effective, must be performed at the right time, which may well clash with other requirements of the farm. The varieties which command the readiest sale and best prices will not in certain instances thrive under farm orchard conditions. The time and attention needed for grading and packing the fruit and for securing the most favourable market it may not always be possible to give at the critical moment. In other words the chances in the long run seem to be against the farmer as a producer of fruit for the table market, unless

he is prepared to give first place to his orchards and second to the rest of the farm. The low cost of production will help him in that case and may outweigh the disadvantage of the system.

While the prospects of growing table fruit for the better markets thus rest largely with the individual farmer concerned, it should not be assumed that, because the highest returns—and in some years the largest profits—can be obtained from table fruit, this class of produce is the best to encourage. It is admitted that, on the basis of returns in favourable seasons, a rate of profit could be shown which would not be approached by any other form of orchard crop, but it is debatable if, in face of the rapid development of commercial fruit farming, similar results can be maintained in the future over a period of years. In the absence of reliable statistics the net profits from orchards of table fruit and of vintage fruit covering the life of the orchards cannot be compared, and it is easy to be unduly impressed with the spectacular returns of table fruit during the recent years of abnormally high prices. Future conditions in the fruit markets are likely to be very different and the more modest prices for vintage fruit may in the long run provide a steadier income, and even a higher rate of net profit, because of the much lower incidental costs. Certainly the information available in conjunction with future prospects does not justify a general recommendation to the average farmer to embark on a policy of producing table fruit in quantity for the better markets, however sound it may be in suitable individual cases.

There remain at least two alternatives, for each of which there is much to be said. The first is to grow vintage varieties exclusively: the second to combine a selection of the vintage varieties which according to the condition of the markets can be used for either purpose.

Past experience leaves little room for doubt, firstly, that soil and local conditions throughout a wide area in the West of England are admirably suited for the production of cider apples and perry pears of high vintage quality and, secondly, that in the average case the farmer can deal with such fruit more conveniently and with better prospects of success than with table fruit, which calls for closer attention. At the same time the rather haphazard systems of the past are out-of-date and need modification to meet the requirements of a modernised cider industry. The recent development of this industry has been very marked and cider, instead of being a beverage the vogue of which was largely confined to the rural districts where it was produced, is now freely consumed throughout the whole country. The export trade is developing and presents almost unlimited possibilities,

and its popularity is rapidly increasing. Perry is still a comparatively unknown drink outside the centres of production, but none who have sampled a fair specimen of Oldfield perry will hesitate to place it at least on a level with cider as regards commercial possibilities, if adequately advertised. Cider has made its pronounced headway this century in face of heavy handicaps. It cannot be denied that at one period it earned, and deserved, a reputation which was the reverse of healthy. Much inferior material was placed upon the market and only those who knew what a well-made pure cider could be could appreciate how totally false an idea of the real thing was created by the former. There is still the difficulty of want of uniformity in character and quality to be overcome. It is neither possible nor desirable that variation in type should be altogether eliminated. Seasonal effects on the quality of the fruit cannot be avoided and good and poor vintage years will occur as in the case of wines. Districts also leave their mark on the character of the product and there is no reason why, say, the ciders of Hereford and Devon should not be regarded as distinct types just as much as are the wines of Burgundy and Bordeaux. But variations of that order are very different from the irregularities due to the miscellaneous collections of apples at present grown in the orchards. To secure a fair tonnage of any one variety to-day is, except in very few instances, impossible. The cider maker has thus to be content to deal almost entirely with mixed fruit, the greater proportion of which is relatively inferior in vintage quality. Neither uniformity nor high quality can be maintained under such conditions. Yet in spite of all cider is being more widely drunk than ever before. A greatly increased demand for vintage fruit of superior quality may be expected from the cider industry as soon as supplies can be provided. To-day no grower of Kingston Black or Foxwhelp apples need find difficulty in disposing of his crop at from 50 to 100 per cent. increase on the price commanded by mixed fruit, and even in the most prolific season at not less than £5 per ton.

The case for concentrating on the production of vintage fruit in the West country farm orchards may be summed up as follows. The land generally is suited to the production of fruit of high vintage quality, the crop is admirably adapted to farm orchard conditions, the demand for the better varieties is in excess of the supply and shows promise of considerable increase, and the net profits from orchards in good order are satisfactory and represent a high return on the expenditure. To attain the latter, however, there must be a drastic reduction in the number of varieties grown and the chosen sorts must be carefully selected with regard to crop yield and vintage

quality. Space will not permit here of detailed consideration of proposals for the constitution and management of cider and perry orchards. Anyone interested will find them set out in the leaflet on Cider Orchards issued by the Ministry of Agriculture and Fisheries.

While, as we have seen, the growing of fruit for market is best left to the farmer with a special interest in fruit culture and the production of vintage fruit is the most reliable for the farmer who does not put fruit first, there remains a third alternative for those who, not disposed to specialise, are yet prepared to give rather more than ordinary attention to their orchards. For them a combination of the two is worth consideration. In such cases a proportion of their orchard acreage not over-large for the time available to be spent on it could be given over to market varieties of a suitable type and the remainder to vintage fruit. If circumstances ran adversely at any time it would be possible to treat the whole crop for vintage purposes, while when opportunity permitted the table varieties could be marketed. The drawback to this system is that table varieties will probably not command for vintage purposes so good a price as the leading vintage sorts and accordingly unless they are grown well and marketed for table use most years, the value of the orchard may be less actually than one of exclusively vintage fruit of the better varieties.

VARIETIES FOR FARM ORCHARDS.

Finally, a few words on the question of varieties may be added. Only apples will be considered, since this is the only fruit which is universally grown in farm orchards. In the report of the National Fruit and Cider Institute which appears in another part of this number of the Journal an article on the utilisation of market varieties of apples for cider making is included. That attempts to show that table varieties of apples can be used for that purpose with successful results, provided that a moderate percentage of fruit of sweet and bitter-sweet vintage sorts is blended with them. Since in future it is probable that increasing quantities of table apples will be available for cider making, the grower of vintage fruit should take that into account and plant a larger proportion of the low-acid varieties than is required for the quantity of sharp vintage varieties proper. For a similar reason it may well pay the grower of table apples to include in his orchards a small proportion of trees of low-acid varieties.

The following list of varieties has already been previously published

as representing a collection of sorts selected primarily for vintage use and, in the case of those in italics, having some value for market work in scarce seasons when they may be turned to more profit than for cider making. The selection is open to criticism on the score that a few of the sorts are not of first-rate vintage value. That is correct, but those varieties are so excellent for farm orchard conditions that it is considered that what may be lost in the quality of the cider is more than compensated for by the greater yield.

CIDER APPLES.	SHARP.	SWEET.	BITTER-SWEET.
Early (to end of Oct.)	<i>Backwell Red</i> <i>Tom Putt</i>	<i>Court Royal</i> <i>Morgan Sweet</i> <i>Sweet Coppin</i> <i>White Jersey</i>	Knotted Kernel Major
Mid-season (Nov.)	<i>Cap of Liberty</i> (syn. <i>Red Soldier</i>) <i>Crimson King</i> <i>Dymock Red</i> <i>Foxwhelp</i> <i>Kingston Black</i>	<i>Eggleton Styre</i> <i>Improved Pound</i> (syn. <i>Sweet</i> <i>Blenheim</i> <i>Sweet Alford</i>	<i>White Close Pippin</i> <i>Yarlington Mill</i> <i>Jersey</i>
Late (Dec. and Jan.)	<i>Greasy Pippin</i> <i>Ponsford</i> <i>Reinette Obry</i>	<i>Slack-ma-Girdle</i> <i>Thomas Hunt</i>	<i>Chisel Jersey</i> <i>Royal Wilding</i>

The number of table varieties of apples suited to be grown under farm orchard conditions is limited. As a general rule only really strong-growing sorts should be considered. While the selection will naturally largely be influenced by local conditions, in general the grower will hardly do better than to choose from Bramley's Seedling, Newton Wonder, Annie Elizabeth and Blenheim Orange. Bess Pool, a dessert variety which flourishes in certain parts of Gloucestershire, Worcester Pearmain (for top-grafting on established trees) and King Edward VII (still relatively untried) are also useful.

CONCLUSIONS.

The position of the farm orchard in relation to the home-grown fruit supply may be summed up as follows: Given the right situation, the grass orchards of the West can produce fruit of the highest quality for either table or vintage purposes. To grow the former

successfully and profitably entails more attention and expense than the latter and it is doubtful policy to develop in that direction unless the grower is prepared to give fully all that is required. Vintage fruit production involves the least demand on the grower of any form of fruit culture. If circumstances do not permit that minimum effort, the land can be put to better use than the production of fruit.

No farmer can expect to escape criticism to-day for bad practice in his orchards. Each county is provided with horticultural experts attached to the County Agricultural Education Department and advice and instruction can be obtained from them without cost. To them recognition is due for their part in the improvement of the conditions of the orchards which can already be noted in certain districts.

V.—"PRACTICE WITH SCIENCE" IN PIG FEEDING.

By Charles Crowther, M.A., Ph.D., Principal, Harper Adams College.

The object of the present article is to outline the fundamental principles which should serve as a guide in the feeding of the pig, and to indicate how due weight may be given to these in feeding practice, subject to the limitations which practical experience imposes in certain directions upon their literal and full application.

At the outset it may be well to outline certain fundamental requirements to which the feeding of all classes of live-stock must conform, and which may be briefly summarised as follows :—

- (a) The food must be suited in bulk and general character to the digestive system of the particular class of animal to which it is to be fed.
- (b) The food must be palatable, adequate in amount and suitable in composition for the effective discharge of the task we expect the animal to perform.
- (c) The general management of the animal must be so designed as to permit it to apply the food as completely as possible to the special purpose for which it is supplied.

Now let us see what these principles imply in the special case of the pig.

(a) GENERAL SUITABILITY OF FOOD.

In comparison with other farm animals the pig has a relatively small digestive system, and consequently is ill-adapted for dealing with bulky fibrous foods. If for no other reason the use of foods, such as hay, straw, chaff and husks, is consequently ruled out for the pig if rapid growth is desired. Even in the case of bulky, soft, green foods, the digestive efficiency of the pig compares unfavourably with that of the ox or sheep for these materials. Compared with the latter animals, food passes quickly through the pig, and hence the greater part of it must be easily digestible. Moreover, the pig has an extraordinary capacity for turning oils, starch and sugar supplied in food into body-fat, and it would seem only common-sense, therefore, to regulate the feeding so as to supply material of this character as fully as economic considerations will permit.

At this stage in our considerations, therefore, and leaving economic factors for the moment out of account, it would appear that the ideal food for the pig would be compact (or "concentrated"), easily digested, free from hard, fibrous material, and rich in oil and carbohydrates (starch, sugar, etc.). The presence of other ingredients (*e.g.*, proteins or albuminoids) in adequate proportion is also essential as will be seen later.

Viewed from this standpoint the various food-materials available may be classified according to suitability. Standing in a class apart, as theoretically—and in practice—the best of all foods, is milk, and in less degree the by-products of the dairy industry—skim-milk, separated milk, butter-milk and whey. The one disadvantage of these foods—apart from the cost—is the excessive water-consumption which is forced upon the pig in order to secure the nutritive solids. Milk of average composition contains about one-eighth its weight of nutriment, the remaining seven-eighths being water, whilst the proportion of water is even higher in the case of the dairy by-products. In other words, the pig is compelled to drink 7lbs. of water for every 1lb. of food it gets in the form of milk, whereas where dry meals are mixed with water for pig-feeding it is not usually necessary to use more than 4lbs. water per 1lb. of meal, and frequently less is used. In this connection it is of interest to note that the milk of the sow is better "balanced" in this respect than cow's milk, since it contains only about 4½lbs. water per 1lb. of "solids."

Turning now to other foods these may be roughly graded into three classes according to suitability.

CLASS 1.—(Highly digestible foods, comparatively free from fibre).

Wheat, barley, maize, maize germ meal, finest wheat middlings, pea meal, bean meal, biscuit meal, linseed cake, fish meal,* dried blood,* meat meal,* dried yeast,* mangels, potatoes.

CLASS 2.—(Foods of good digestibility, but containing fair proportion of fibre).

Sharps, oats, palm kernel meal, coconut meal, maize gluten meal, rice meal, malt culms, green fodder.

CLASS 3.—(Foods of only moderate digestibility and rich in fibre).
Bran, brewers' grains, silage.

It would appear, therefore, that no ration which does not contain a considerable proportion of food of Class 1 can fully exploit the fattening capacity of the pig. Practical experience teaches, however, that in many cases, especially in the earlier stages of growth, the ration cannot be satisfactorily composed entirely of food of this class, but it is desirable to incorporate a certain proportion of food of Class 2, and possibly even in some cases a small proportion of food of Class 3. This is well illustrated by the time-honoured feeding mixtures of bran, sharps and barley meal. The inclusion of the lower grade foods is necessary to give the desirable bulk to the ration and for certain other dietetic advantages which may thereby be secured, but the proportion should be strictly limited.

(b) ADJUSTMENT OF AMOUNT AND COMPOSITION OF FOOD TO REQUIREMENTS.

It is obvious that the amount of food required must vary with the size of the pig and with the rate of growth which the ration is designed to produce. Thus, if a certain ration produces an average increase in live-weight of 1lb. per day, clearly a heavier ration will be required to raise the rate of increase to $1\frac{1}{2}$ lb. per day.

The total amount of food in itself is not sufficient, however, to define the requirements, but attention must further be paid to the amount of certain special ingredients supplied by the ration. This is especially the case with regard to the amount of *proteins* (or albuminoids) and *mineral matters* contained in the ration.

* These foods, although highly digestible and free from fibre, have special properties which differentiate them from the other foods of this class (see later).

The proteins are of outstanding importance because they alone of food constituents can produce the proteins of the animal body which constitute the dominant ingredients of the body tissues and fluids. The requirement for food-proteins can certainly be reduced by increasing the supply of oil and carbohydrates in the food, but this reduction stops at a certain point below which deficiency of food-protein imposes a fatal bar to satisfactory growth.

Moreover, it has been found in recent years that the proteins of certain foods (*e.g.*, maize) are not in themselves entirely satisfactory in character for the production of the body-proteins, but that their deficiencies can be remedied by admixture with other foods. This is, indeed, one of many reasons in favour of the use of a mixture of foodstuffs, rather than a ration restricted to one single foodstuff.

The need for sufficient and suitable mineral matters in the food arises also from the presence in the body of similar mineral matters as essential components. This is strikingly exemplified in the case of the bones, fully one-half of the substance of which usually consists of phosphate of lime. If for no other reason, therefore, it is obviously important that an eye should be kept upon the amounts of lime and phosphoric acid supplied in the food, especially in the case of young rapidly growing animals. Probably also the supply of other mineral ingredients, such as potash, would repay closer attention than is commonly given to it.

The nutrition research of recent years has revealed the existence of still one other class of food ingredients, the supply of which may under certain conditions form the key to success in feeding. These ingredients, termed variously "accessory food factors" or "vitamins," differ essentially from the other food-ingredients in that their value is determined not so much by the material or energy which they supply themselves, as by their power of bringing the other food ingredients into effective action. Thus a ration might supply an abundance of proteins and carbohydrates, and yet produce very disappointing results if the necessary "vitamins" are absent or deficient—the amount of the latter necessary to transform the ration into a perfectly satisfactory one being, however, very small. A crude analogy may, perhaps, be drawn with the internal combustion engine if we liken the mixed proteins and carbohydrates of the food to the mixture of petrol and air fed to the cylinders, whilst the "vitamins" are represented by the spark. Without the spark (or an equivalent) the petrol-air mixture is valueless for the production of energy, but a very modest sparking outfit will suffice to bring into effective action an unlimited supply of the fuel mixture.

Little is yet known as to the precise character of the "vitamins,"

but there would appear to be at least three or four distinct kinds, some of which seem to be absent from, or present in only inadequate proportion in, many of the foods commonly used in pig-feeding, and consequently may need to be taken into account under certain conditions of pig-feeding.

In practice the risk of trouble through deficiency of "vitamins" is practically negligible where the pigs have free access to grass or green crops and also in the case of sty-fed pigs receiving milk or milk-products, such as separated milk, butter-milk or whey. The risk may, however, become a definitely practical one in the case of pigs fed exclusively on meals, especially if care be not taken to use a mixture of meals, including preferably one ingredient of animal origin, such as fish meal or dried blood.

It is with the confined pig fed exclusively on meals, moreover, that trouble due to inadequate or imperfect supply of mineral matters chiefly arises, although this is probably also a contributory cause to some of the "rheumatism" or "cramp" experienced where pigs are grazed on land very deficient in lime.

The requirement as to palatability needs little discussion. Obviously, if the pig is to put on weight rapidly it must retain a uniformly good appetite, such as can only be maintained by palatable appetising food. The pig may not entirely refuse less palatable food, but it will eat less and consequently will not increase in weight as quickly, and any reduction in the cost of the daily ration effected by using the less palatable food may easily be more than neutralised by the added expense of the longer period for which the pig has to be kept to reach the desired slaughter-weight.

There is a common belief that a palatable food is more digestible than an unpalatable one, but, except in extreme cases, this is not so; the trouble with the latter is that the pig does not eat enough of it.

(c) GENERAL MANAGEMENT.

The principle has been enunciated that the general management of the animal must be so designed as to permit it to apply the food as completely as possible to the special purpose for which it is supplied. This is based upon the fundamental fact that all the requirements of the pig must be met out of the food. Some of the food must necessarily go to maintain the varied activities within the body of the pig, such as the work of the heart, lungs, digestive organs, mastication, etc. Another portion must necessarily go to provide for the muscular activities of the pig. It is obviously, therefore, only the food that remains over after these requirements have been

met that can serve for the production of flesh, fat and bone, which is our primary object in feeding the pig, and from a given amount of food this fraction will be greater the lower we can reduce the diversion of food material into the previously indicated directions. We can do practically nothing to reduce the demands of the vital organs for support, since the very life of the pig depends upon their activity, but we can do a great deal to regulate the muscular activities of the pig, and consequently the management must be designed to secure the utmost economy in this direction consistent with the maintenance of good health. The pig should receive every encouragement to lie down when he is inclined to, since even mere standing still requires more muscular effort, and consequently more food, than lying down. It follows further that the pig must not be disturbed more frequently or kept on his feet longer than is absolutely necessary. In the case of the grazing pig he should not be compelled to travel too far to get his fill of food; in the case of the sty-fed pig he should have a good interval for rest between meals, or in other words, he should not be fed too frequently, since feeding involves disturbance. In practice it is doubtful economy to feed pigs oftener than every three hours, which means at most four meals per day. The more general practice, which has much to commend it from our present point of view, is to give a full meal at each end of the day, with an allowance of greenstuff or roots about mid-day.

All other conditions which conduce to quietness and rest, such as comfortable housing, adequate litter, regularity in feeding, etc., tend also to secure a more economical utilisation of the food supply. At the same time it must be kept in mind that all efforts to secure rapid growth and fattening will be rendered nugatory unless adequate provision be made for the development of the frame which is to carry the flesh and fat, and for the maintenance of the animal in good bodily health. A life of absolute rest is by no means the practical ideal to aim at. Some exercise is necessary, and, indeed, in the case of young, rapidly-growing pigs, adequate exercise is of the highest importance. Much of the success of outdoor methods of pig-raising is undoubtedly due to the greater facility with which this requirement is met than in the case of sty-housed pigs. Exercise is necessary, but unnecessary exercise means waste of food. The practical aim should be to give the pig just enough exercise to satisfy his fundamental needs and no more, and the assessment of this is one of the many arts of the expert pigman.

After these somewhat lengthy explanations we may now recapitulate that the food of the pig must be palatable, suited in bulk

and general character to the digestive system of the pig, adequate in total amount of digestible material and including specially a sufficient and suitable supply of proteins, mineral matters and "vitamins." Furthermore, the pig receiving it must be so managed as regards avoidance of undue exertion and maintenance in quiet and comfort as to ensure that the maximum proportion of the food is available for purposes of production of flesh and fat.

Now we may turn to consider what these requirements mean in terms of practice.

FEEDING PRACTICE.

Let us first consider what is the character of the natural food of the suckling pig, the milk of the sow. Data on this point are not abundant for the obvious reason that reliable samples of sow's milk are difficult to obtain. The appended average of some 30 samples will, however, give us sufficiently reliable guidance for our purpose. The corresponding averages for the milk of the Shorthorn cow are also given for purposes of comparison.

					<i>Sow's Milk.</i>	<i>Cow's Milk.</i>
					%	%
Total Solids	..	..	..	..	18.3	12.6
Albuminoids (Proteins)	..	..	..	..	6.0	3.4
Fat	..	..	..	..	6.4	3.8
Sugar	..	..	..	..	4.9	4.7
Mineral Matters (Ash)	..	..	..	..	1.0	0.7

Judged by these figures sow's milk would appear to be nearly twice as rich as cow's milk, and ought indeed to be so, bearing in mind that in proportion to its size the young pig grows so much faster than the calf. Furthermore it will be noticed that the sow's milk is specially rich in the tissue-forming (proteins) and bone-forming (ash) ingredients, and notably also in fat—the most concentrated "general purpose" ingredient of foods.

Were we to aim, therefore, at imitating the mother's milk as closely as possible in devising a food for weanling pigs we should devise a mixture of highly digestible foods, rich in proteins, oil and suitable mineral matters (lime, potash and phosphate). In actual practice, however, it is found that the feeding of oil foods to young pigs can not be carried very far, as a point is soon reached at which digestive disturbance sets in. Similar trouble is also experienced if we attempt to supply an equivalent for the oil in the form of very starchy foods. Probably the best substitute on which to wean the young pig is cow's milk in some form, either whole, skim or separated, or even as dried milk. Where milk is not available and recourse

must be had to meals it is a matter of common experience that the only food safe to give in considerable quantity is a wheat milling offal of good quality. The reason for this is not very obvious, but the overwhelming body of practical experience on this point cannot be safely ignored.

It is of course from the stage of weaning onwards that the feeding of the pig can be planned on lines of methodical rationing, and for purposes of illustration of the general lines to be followed we will take the simplest case of all, that of the sty-fed fattening pig receiving nothing but meals and water, apart from a little greenstuff or roots. The pig we have in mind is one of good quality weaned say at the age of eight weeks, with a live-weight of about 30 lbs. and fed upon meals in such fashion as to attain the live-weight of 180-200 lbs. at 28 to 30 weeks old. This represents a feeding period of 20 to 22 weeks, during which the pig must put on weight at an *average* rate of fully one pound per day, or one stone per fortnight. The pig will not grow at this rate uniformly throughout the period; in the earlier stages it will probably not gain more than half a pound a day, but towards the end there should be little difficulty in securing an average daily increase of 2 lbs. or over.

The basis upon which the rationing must rest at each stage of the feeding is the size of the pig, which is sufficiently accurately measured for the purpose by its weight. At every stage of the pig's growth there is a certain amount of food required simply to keep the pig alive and growing, apart from fattening. The quantity of food required for this purpose is roughly proportional to the live weight of the pig; any food consumed beyond this minimum requirement serves for the production of fattening increase. From this it might appear that the aim should be to force the pig to consume as much as possible, but here again practical experience intervenes to remind us that forced feeding is a fine art, which in unskilful hands may easily lead to disaster. For the average pig-feeder the point of safety—and probably of maximum profit—lies somewhere a little below the extreme limits of the pig's appetite. The writer's practice is to so adjust the allowance at each meal that the trough is just licked clean when the last pig leaves it, two such meals being given daily, with an intervening small allowance of greenstuff or roots. In other words, the pig is satiated at each meal, but the interval between meals is sufficient for the recovery of a hearty appetite.

Now as to actual food-requirements, there are various ways in which these might be stated, but it will be sufficiently accurate for practical purposes to state them in terms of *total meal* and *digestible*

protein contained therein, the latter being specially important for reasons previously outlined. Strictly speaking of course the total meal is not an accurate guide since different feeding-stuffs vary in nutritive value, but in the meals commonly used in pig feeding there is not the wide variation in this respect that occurs with other live-stock, and the most nutritious meal is probably not more than, say, 25 per cent better than the least nutritious meal (save perhaps bran) likely to be used by the competent feeder. Provided, therefore, that a mixture of meals is used, and that the scheduled ration be used as a guide rather than as a "standard," there can be little error of practical consequence in taking the weight of meal as our basis. This also makes it easier to make use of the large mass of information on meal consumption which is available from pig-feeding practice.

From information of this character it would appear that a suitable scale would be one starting with $1\frac{1}{2}$ lbs. of meal per day for the 8-week old pig and rising to about 8 lb. per day at the close of the feeding period.

With regard to the requirements for digestible protein the best information available indicates that the quantity requisite will range from $\frac{1}{4}$ lb. per day for the 8-week old pig weighing 30 lbs. to $\frac{3}{4}$ lb. for the pig weighing 200 lbs. Expressed in another way, the daily ration of meal should contain in the earliest stages not less than *one-sixth*, and in the latest stages, about *one-tenth* of its weight of digestible protein.

Taking the limits indicated the following scale has been arrived at :—

Age of Pig.	Approximate Weight of Pig.	FOOD REQUIREMENTS PER DAY.	
		Total Meal.	Digestible Protein in same.
Weeks	lbs.	lbs.	lbs.
8—12	30—45	$1\frac{1}{2}$ — $2\frac{1}{2}$	0.25—0.35
12—16	45—70	$2\frac{1}{2}$ — $3\frac{1}{2}$	0.35—0.50
16—20	70—100	$3\frac{1}{2}$ — $4\frac{1}{2}$	0.50—0.60
20—24	100—140	$4\frac{1}{2}$ — $6\frac{1}{2}$	0.60—0.68
25—28	140—190	$6\frac{1}{2}$ —8	0.68—0.75

Feeding on this scale would represent a consumption of about 600 lb. meals in 20 weeks, producing 160 lb. grain in live weight, or an average consumption of 3.75 lb. meal for every pound gain in liveweight.

For the purpose of illustrating the kind of rations which comply

with the foregoing requirements we will take the simple case of a mixture of bran, middlings (or sharps), barley meal and fish meal—these all being foods in common use which are safe to use in reasonable proportions with pigs of all ages after weaning.

Bran is included primarily because of its mild laxative action. Its direct nutritive value is relatively low, and consequently we will not include more than 5 to 10 per cent. in the ration.

Similarly fish meal is to be regarded as a special food having great value, especially for young pigs, up to a certain point, but of doubtful economy beyond that point. Moreover if used too freely there is the risk that the carcase of the pig may acquire a fishy taint. For these reasons we will impose upon ourselves a maximum of 15 per cent. in the case of the fish meal, to be reduced as the pig increases in weight to 5 per cent., or possibly eliminated entirely in the last stages of fattening.

Middlings—the medium quality milling offal known under so many different names in different parts of the country—is, when pure and of good quality, the safest single food for pigs of all ages. Hence, for the average pig-feeder, or where close supervision of the pigs cannot be exercised, it is generally desirable to have a fair proportion of this class of food in the ration, starting say with 40 per cent. in the case of the 8-weeks old pig. It is not as nutritious, however, as barley meal, maize meal, and many other pig foods, and consequently the proportion should be steadily reduced as the pig grows and becomes less liable to digestive irregularities.

Having decided the proportions of bran, fish meal and middlings, the rest of the ration is then made up of barley meal, the old-established pig food whose merits need no argument.

Proceeding on the lines indicated we arrive at some such ration as the following for the 8-weeks old pig :

Bran	..	..	..	5%
Fish Meal	..	..	..	15%
Middlings	..	..	..	40%
Barley Meal	..	..	..	40%

This mixture will contain about 16½ per cent. of digestible albuminoids, so that if the pig consumes 1½ lb. of the ration per day, this will include about .25 lb. of digestible albuminoids the amount indicated as desirable at the outset in the table on p. 65.

Starting with this ration changes should be made gradually and systematically at later stages of the feeding period by reducing the fish meal and middlings and increasing the proportion of barley meal, until in the last stages the ration consists very largely of

barley meal. The following table will serve as a guide for this purpose, the rations, when consumed in the amounts indicated in the schedule on p. 65 supplying approximately the amounts of digestible albuminoids there suggested as desirable.

Age of Pig. Weeks.	Bran. %	Fish Meal. %	Middlings. %	Barley Meal. %	Digestible Albuminoids in 1lb. of Mixture
					lb.
8—12	5	15	40	40	·16
12—16	5	15	35	45	·15
16—20	5	10	25	60	·13
20—24	5	10	15	70	·12
24—28	—	5	15	80	·10

In this table the rations are changed every four weeks, but in practice the appropriate times for changes to be made would be decided by the progress of the pigs. In any case the changes should be made gradually, the transition being spread over several days.

These typical rations may now serve us as a basis for devising equivalent rations containing other foods it may be desired to use, by substituting the latter for a similar proportion of middlings or barley meal, or both, according to the character of the food in question. In certain cases the appropriate food to replace would be the fish meal, but only other animal foods would be suitable for this purpose such as dried blood, meat meal or milk—to which select list, however, may be added dried yeast. The last named contains approximately the same proportion of albuminoids as fish meal, but lacks to a considerable extent the phosphate of lime which is so valuable ingredient of the latter. Dried blood and meat meal are appreciably richer in albuminoids than fish meal, and should therefore be used in lower proportions, starting say with 10 per cent.

All other meals in common use may be regarded as more or less comparable with middlings or barley meal and may be roughly classified as indicated in Classes 1 and 2 of the schedule on page 59. Foods of Class 1 (excluding fish meal, etc., as above), may be substituted in large part for the barley meal, whilst foods of Class 2 are substituted more appropriately for the middlings, or, perhaps, better partly for the middlings and partly for the barley meal. In making such substitution, however, care should be taken, especially in the earlier stages, not to reduce the proportion of middlings unduly. For example, if it be desired to use palm kernel cake meal in the ration, not more than one-fourth of the middlings should be replaced at first, any further palm kernel meal used being substituted for an equal amount of barley meal. This particular food is in fact

one to which the pig accustoms himself only gradually, so that only a comparatively small proportion should be used at the start, making, say, for the 8-12 weeks old pig a ration somewhat as follows :

5%	Bran
15%	Fish Meal
35%	Middlings
30%	Barley Meal
15%	Palm Kernel Cake Meal

The proportion of palm kernel meal might then be steadily increased at the expense of the middlings and barley meal until towards the close of the feeding period it amounted to, say, 35% of the total ration, which might at that stage be somewhat as follows :—

5%	Fish Meal
15%	Middlings
45%	Barley Meal
35%	Palm Kernel Cake Meal

It is difficult to particularise for each foodstuff as to how much can be safely introduced into the rations, but it is a fairly reliable general rule that, except for the well known cereal meals, such as barley, wheat and maize meals, etc., no constituent food should form more than one-third of the ration.

In the foregoing our attention has been directed to the case of the pig fed on meals alone, but in many cases other food supplies of a liquid or succulent character are available, such as milk, skim milk, whey, potatoes, roots, etc. The scale of rations given above may be applied directly to such cases, however, the meal mixtures being used to supplement the succulent foods, allowance being made for the quantity of the latter consumed on the following basis :—

1lb. Meal	=	3½ lbs. whole milk
	=	6 lbs. skim milk
	=	12 lbs. whey
	=	4 lbs. potatoes
	=	9 lbs. mangels or swedes
	=	10 lbs. green rape or vetches

Thus, if the pig is receiving 4 lbs. potatoes per day, the amounts of meal required as set out in the schedule on p. 65 should be reduced by 1 lb. The same meal mixtures as have been discussed above might still be used along with the potatoes, although the feeder familiar with the composition of foods would probably vary his ration a little by increasing the fish meal slightly in order to compensate for the low proportion of albuminoids in the potatoes. A similar slight adjustment might also be desirable where roots or whey are used.

On the other hand, where milk is available, no such adjustment need be made, or if thought desirable would probably take the form of a slight reduction of the proportion of fish meal in the mixture.

We have dealt in the foregoing, for the sake of simplicity, with the case of the sty-fed fattening pig, and space will not permit us to touch more than very briefly upon the feeding of other classes of pigs or other systems of feeding.

The feeding of young pigs intended for breeding purposes may follow pretty closely the same lines as those discussed above, except that less trough food and greater facilities for exercise will be supplied. The rations, generally speaking, will consist largely of foods of Class 2, together with 5-15% of fish meal, the more starchy foods of Class 1 not being specially required in this case.

Similar considerations apply to the case of the in-pig gilt until near farrowing, when special care is necessary to supply a mild, gently laxative diet. After farrowing, however, the requirements are entirely transformed, the sow now being called upon for a great effort in the form of the rapid production of large quantities of albuminoids, fat and mineral matters in her milk to serve the requirements of the litter. The kind of food now appropriate to the needs of the case is more or less similar to that of the middle part of the feeding period discussed above, except that the proportion of fish meal or other food rich in albuminoids should be increased somewhat, and the supply of meal of best quality and of water should be practically unstinted; a full-grown sow with average sized litter will commonly consume 10-14 lbs. meal per day.

In conclusion, a brief consideration may be given to the somewhat vexed question of the value of green food for pigs. Reference was made earlier to the value of green food as a source of "vitamins," and there is general agreement as to the desirability of giving a small supply of greenstuff regularly to pigs kept in confinement, but we are concerned here more with the question of the pig dependent in large measure upon greenstuff for his sustenance, as in the arable grazing system of swine husbandry. We would not dispute the obvious advantages which the "outdoor system" confers in the way of facilities for the development of the frame and constitution, but we wish to consider here solely what are the probabilities as to the value of greenstuff as a source of food. At the outset of the article we drew attention to the fact that the pig is not well adapted for dealing with bulky fibrous foods, and that even in the case of soft greenstuff, although this is readily consumed with obvious benefit to the pig, it is doubtful whether he extracts

therefrom, as much nourishment as do cattle or sheep. This may be illustrated by the following data which represent in each case the average of two tests made with red clover cut just before flowering :—

	<i>Percentage by Pigs</i>	<i>Digestibility by Sheep</i>
Total Organic Matter ..	40	68
Albuminoids	33	76
Carbohydrates	57	75
Fibre	16	53

If these results may be regarded as typical it would appear that the pig extracts barely two-thirds as much nourishment from the green food as the sheep, although possibly he converts what he does get more economically into meat. At the same time the 40 per cent organic matter digested from the clover compares very unfavourably with the 80 to 90 per cent. digestibility of the organic matter of barley meal and similar foods. Compared with the latter, therefore, the green fodders must be regarded as comparatively low-grade foods, and the satisfactory results obtainable by their use can only be attained by passing large quantities through the digestive tract. In the greenstuff, moreover, the nutritive material is associated usually with something like 9 or 10 times its weight of water, so that a very large water consumption is also involved. Further, the increased activity of the outdoor pig must use up for the support of muscular activity much food which would otherwise be available for fattening. From the purely physiological standpoint this would not seem to be the most efficient way of utilising the remarkable propensity of the pig for converting food into meat, but it may, nevertheless, be quite sound practice if it leaves a bigger margin of profit in the pig-feeder's pocket.

The practical issue as between indoor and outdoor systems of feeding thus narrows down to a question of economics. So far as nutrition science bears upon the issue it would lead one to expect that indoor methods, rationally conducted with due regard to the fundamental scientific principles, would give a larger production of meat or milk from a given quantity of food than outdoor methods. On which side the advantage of financial economy will lie must depend upon the various factors which contribute to cost, and these are too variable to permit of the drawing of any general conclusion which might be applicable to all cases.

VI.—THE IMPROVEMENT OF POOR PASTURES.

WITH ESPECIAL REFERENCE TO THE ERADICATION OF BRACKEN
AND THORN.

PROGRESS REPORT, 1923.

Long Ashton Golf Course Plot.

JUNE PLOT.

<i>Dates of Cutting.</i>	<i>Particulars of Cutting.</i>	<i>Costs.</i>
June 6th, 7th ..	One man and two horses with mowing machine ..	£2 0 0
	One man with scythe	14 0
Aug. 5th ..	One man and two horses with mowing machine ..	1 0 0
Aug. 8th, 9th ..	One man with scythe	12 0
Total cost of cutting bracken		£4 6 0

JULY PLOT.

<i>Dates of Cutting.</i>	<i>Particulars of Cutting.</i>	<i>Costs.</i>
July 3rd ..	One man and two horses with mowing machine ..	£1 0 0
July 4th—7th ..	One man with scythe	1 4 0
Sept. 21st* ..	One man and two horses with mowing machine ..	1 0 0
Total cost of cutting bracken		£3 4 0

GROWTH OF BRACKEN DURING THE SEASON.

June Plot.

May 15th.—Only few fronds were above ground, varying from 4ins. to 6ins. in height.

June 6th.—First cutting carried out. The majority of the fronds were not fully grown. The general growth made varied between 9ins. to 1ft. 6ins.

July 16th.—The second growth of fronds varied between 6ins to 1ft. 6ins. in height.

Aug. 5th.—Second cutting carried out. Growth similar to July 16th.

Sept. 10th.—Only a few fronds between 4ins. and 6ins. in height were scattered over the plot.

Oct. 22nd.—There were only a few fronds present and these had only made a growth of about 6ins. They were ripening off.

* NOTE.—On this date the growth of bracken on the plot was only poor, there being only comparatively few plants present above 9 inches in height. The plot was cut over primarily because of the presence of many thorns and thistles and of much rank coarse grass on it.

July Plot.

May 15th.—As on June Plot.

June 6th.—The growth made varied from 1ft. to 2ft. in height, being somewhat stronger than on the June Plot.

July 3rd to 7th.—First cutting carried out. The bracken on the plot on July 3rd averaged about 2ft. 6ins. in height.

July 16th.—There were no new fronds visible.

Sept. 10th.—There were a few plants varying between 9ins. to 1ft. 3ins. in height scattered over the plot.

Sept. 21st.—Second cutting carried out. Growth similar to Sept 10th.

Oct. 22nd.—The bracken had made no visible growth since the second cutting.

Remarks.

On both plots it is obvious that the cutting is producing very marked effects on the growth and vitality of the bracken plants. In 1921 at the time of the June cutting, the bracken on the June plot averaged about 3ft. in height and it was very difficult to walk through the growth on the plot. In June 1922 the fronds averaged from 9ins. to 1ft. 6ins. in height and were pale green and weakly in appearance. On July 20th, 1921, the plants on the July plot averaged 3ft. 6ins. in height as against 2ft. 6ins. on July 3rd, 1922. Here also on this latter date the plants were pale green in colour.

Herbage.

The character of the herbage on both plots during the season has been similar and it cannot yet be said that the quality of the grazing has been greatly improved since the beginning of the experiment. This perhaps has been largely due to the weather conditions during the past two seasons. The grass did not start well in the spring of 1922 owing to the hot dry weather in May and early June which caused "burning out" of the grass over most of the plot.

Towards the end of the season, however, it did appear as though the grass were fresher and less coarse than previously. There was no marked difference between the herbage on the manured and unmanured plots, though the "slagged" portion on the June plot did show a fair development of clover in September.

Stocking.

Fifteen heifers were grazed on the plot from May 25th to July 2nd. From this latter date to the end of October, 40 sheep were enclosed on the plot at intervals. During the winter cattle and

horses have had access to the plot from the adjoining pasture and sheep are also to be grazed in this pasture from the end of January, 1923.

Manuring.

Strips, each $\frac{1}{2}$ acre in area, on both the June and July plots have been treated as under :

1. Ground lime at rate of 72cwts. per acre.
- *2. Basic Slag at rate to supply 150 lbs. of phosphoric acid (P_2O_5) per acre.
- †3. Nauru Phosphate at rate to supply 150 lbs. of phosphoric acid (P_2O_5) per acre.

The manures were all sown during January, 1922.

Ashton Park Plot.

DETAILS OF CUTTING OF BRACKEN.

Dates of Cutting.	Particulars of Cutting.							Costs.		
								£	s.	d.
June 6th ..	One man and two horses with mowing machine for half day							0	15	0
July 31st ..	Ditto							0	15	0
	Total cost of cutting bracken							£1	10	0

Growth of Bracken during Season.

May 17th.—There were scarcely any fronds visible.

June 6th.—First cutting carried out. The plants were only a few inches high and were light green in colour.

July 16th.—The number of plants on the plot was relatively small. They were about 6ins. in height.

July 31st.—Second cutting carried out. Plants were only a few inches high.

Sept. 3rd.—There were a few fronds scattered over the plot averaging about 4ins. in height.

Oct. 1st.—Growth similar to Sept. 3rd. Plants averaged about 6ins. in height.

Remarks.—

The Bracken on this plot is now in a very weak condition and during 1922 fully grown plants were only about 9ins. to 12ins. high.

* Containing 36% Total Phosphates.

† Containing 85% Total Phosphates.

Herbage.

The herbage on this plot is on the whole fairly good, though on the unmanured plots there are considerable patches of poor grass which the stock are not eating down.

The slag treatment has been very successful. This plot has scarcely any patches of poor grass left on it, being practically covered with a mat of wild white clover. The stock have grazed it very bare throughout the season and it is easily distinguishable from the other plots.

The dressing of lime appears to have effected a development of fine grasses, but has not stimulated the growth of clovers to any marked extent.

The herbage on the Nauru phosphate plot is similar in appearance to that on the untreated plots.

Stocking.

The plot has been stocked throughout the whole of the season. Cattle alone were grazed at certain periods and cattle and sheep at others.

Manuring.

The sub plots for the different manurial treatments were marked out in strips across the plot. Details as regards areas and treatments are as follows :—

1. Ground lime treatment over $\frac{1}{2}$ acre applied at rate of 48 cwts. per acre.
2. Basic slag treatment over 1 acre applied at rate to supply 150lbs. of phosphoric acid (P_2O_5) per acre.
3. Nauru phosphate treatment over 1 acre applied at rate to supply 150lbs. of phosphoric acid (P_2O_5) per acre.

The manures were all sown during January, 1922.

Blackrock Farm Plot at Lydney Park.

In 1921 the total spent in cutting the June and July plots and, later, the whole area of the field was, £5 3s. 6d.; In 1922 the cutting of the June plot cost, £1 6s. 2d.; The July cut, £1 14s. 2d.; plus half day with man and mowing machine and two horses on the more level parts, 10s. 6d.; Then the whole field was cut over in September by contract with scythe at the cost of £3 10s. Total £12 4s. 4d.

The tenant did not keep any exact record of the cost of applying the manures, but this would not amount to very much.

The field upon which the experiments have been carried out is

No. 170 of the Ordnance Survey Map of Lydney Parish and contains 8-818a. Roughly about two-thirds of this area was more or less covered with fern when the experiments were started in 1921. The North-west end of the field had the thickest covering of fern and part of this was cut about the middle of June and another section in the first week in July and the whole of the field was cut over again in August.

In January, 1922, Basic Slag at the rate of 8cwts. 37lbs. was applied to an acre of about the centre of the field which does not carry much fern and 3cwts. 59lbs. of Nauru Phosphate was applied to another acre more to the east of the field, leaving a ten yard strip unmanured between the two acre plots. No very apparent result has as yet followed either of these dressings, but it was noticed by the tenant, Mr. A. T. Perkins, that stock grazed down the slag plot rather closer than the other.

Owing to the dry Spring of 1922 the fern was very slow in making any growth, and the first cut of a section on the north west side of the field was made on the 23rd June. The rest of the field was cut over by the 10th July and the whole field was again cut over between the 19th and 22nd September. On the occasion of the 2nd cut there appeared to be less fern to be cut on the part that was cut in July than on that which was cut in June, this no doubt being due to the fact that on the June cut plot a quantity of fern had not come up at the time of cutting.

It is a fact that the fern was considerably less in 1922 than in 1921.

On the 2nd August, 1922, 5cwt. of Basic Slag was applied to a strip of 5 chains long by 1 chain wide across sections where the fern was cut both in June and July, but of course no result is as yet apparent. Owing to the growing Autumn the grass got rather ahead of the stock and it was not eaten down well.

I have suggested to the tenant that, during the Spring of 1923, he should apply a dressing of salt to the field which will induce the cattle to graze down the rough grass.

1921.

Wootton Fitzpaine Plot.

Value.—The value of the fern covered ground is estimated to be 10s. per acre, and that of the surrounding land 15s. per acre.

Acreage.—The whole of the field measures 13ac. 12pls., about 12 acres of this is covered with fern.

Elevation.—180ft. to 300ft.

Labour.—Half of the fern covered area was cut in July at a cost of £2 8s. 10d. Owing to the rough nature of the ground the cutting had to be done with scythes.

Stock.—Sheep were run over the area occasionally, as very little grass grew after the cutting in July.

Manure.—8cwts. 37lbs. of Basic Slag, and 3cwts. 59lbs. of Nauru Phosphate were received and applied on January 12th. The Slag and Nauru Phosphate were each applied to a definitely marked area of 1 acre, and a "no manure" plot left in between.

1922.

Labour.—Half of the experimental plot was cut over in June with scythe at a cost of £1 1s. 6d. for three acres. The bracken was then about 22ins. high. The other three acres were cut in July at a cost of £1 6s. 0d., bracken height 36ins. The cuttings were made so that about half of the manured plots were cut in June, the other half in July.

Herbage.—Considerable improvement can be observed all over the plot, especially on the acre where Basic Slag was applied, and in a lesser degree where the Nauru Phosphate was sown. White Dutch Clover and Birds' Foot Trefoil appeared quite early on the Slag area, and, while there is a little clover all over the area, nowhere is it so pronounced as in this spot. The grasses are all fine and of good quality.

Stock.—The plot has been close grazed with sheep and cattle alternately. These have been kept on the ground practically all the Summer, and there is still enough keep for some time.

VII.—THE SOCIETY'S EXHIBITION AT PLYMOUTH.

By F. H. Storr.

The Society had this year to deplore the fact that their President, H.R.H. The Prince of Wales, was prevented by his imperial duties from being present at the Plymouth meeting, which was held from Thursday, May 31st, to Tuesday, June 4th. Lord Clinton, acting as deputy president, received from him, a telegram which, showing not only the regret he felt for his absence but the keen interest he was taking in the position of agriculture, must be reproduced

here in full—"Regret very much inability to attend Bath and West Show, June 1st. I fear that the recent heavy fall in price of produce must have adversely affected all connected with agriculture, particularly those who have recently purchased their farms, and I sympathise with all in their difficulties. I trust that the outbreak of Foot-and-mouth disease has now been entirely stamped out—EDWARD P."

The Show ground at Higher Swilly, in the Stoke Road, was slightly further from the town than that occupied in 1902. Except where municipalities are prudent enough to provide ample space for such public events, it is likely to prove increasingly difficult to find suitable grounds within reasonable distance of the towns visited, owing not only to the spread of the building area but to the large space now occupied by allotments. The Mayor of Plymouth, however, in his address at the formal opening of the show, drew attention to the special effort the municipality had made to overcome the difficulty by the building of a fresh length of tram lines expressly for the service of the Show ground, this being but one example of the hearty reception accorded to the Society by the Town Council and the Local Committee.

The unusually hot weather prevailing over the whole country was responsible for a rather large proportion of absentees from the stock exhibits, though the stock actually present did not show any ill effects. Dartmoor Sheep and Long White Lop-Eared Pigs were separately classified for the first time at the Society's Shows. As was to be expected the best displays were seen in the classes for Devon, South Devon and Channel Island cattle, while in the other departments Dartmoor Sheep and Large Black Pigs were clearly the popular local breeds. A comparative statement of the entries in the stock and produce classes at Plymouth in 1873, 1902 and 1922 is given here.

						PLYMOUTH.		
						1873	1902	1922
HORSES (with Boxes)—								
Agricultural. . . . .	..	..	..	..	..	24	53	36
Hunters, Hacks and Ponies	..	..	..	..	..	49	89	135
						—73	—142	—171
CATTLE—								
Devons	..	..	..	..	..	82	32	71
South Devons	..	..	..	..	..	51	52	57
Shorthorns	..	..	..	..	..	65	59	40
Dairy Shorthorns	..	..	..	..	..	—	—	13
Herefords	..	..	..	..	..	41	41	29
Sussex	..	..	..	..	..	44	16	19
Carried forward						.. 283	200	223

				Brought forward	.. 283	200	229
Red Poll	..	..	..	..	—	23	10
Aberdeen-Angus	..	..	..	..	—	15	14
British Friesian	..	..	..	..	—	—	34
Jersey	..	..	..	..	27	115	76
Guernsey	..	..	..	..	32	67	65
Kerry and Dexter	..	..	..	..	—	43	47
Dairy	..	..	..	..	2	52	51
					—344	—515	—526
SHEEP	..	..	..	..	211	170	197
GOATS	..	..	..	..	—	—	25
PIGS	..	..	..	..	90	103	252
POULTRY	..	..	..	..	309	398	415

FARM PRODUCE—

Cheese	..	..	..	..	—	46	22
Butter and Cream	..	..	..	..	—	113	126
Cider and Perry	..	..	..	..	—	65	28
					—	—224	—176
					1027	1552	1762

The amount offered in money prizes was £4070 7s., made up as follows :

Bath and West and Southern Counties Society	..	..	£2944	2	6
The President (H.R.H. The Prince of Wales, K.G.)	..	..	10	0	0
Plymouth Local Committee	..	..	117	0	0
Devon County Agricultural Association	..	..	250	0	0
Shire Horse Society (or Medal)	..	..	15	0	0
Suffolk Horse Society	..	..	36	0	0
British Percheron Horse Society	..	..	22	0	0
Captain H. G. Hawker	..	..	5	5	0
Devon Cattle Breeders' Society	..	..	37	0	0
South Devon Herd Book Society	..	..	30	0	0
Shorthorn Society	..	..	30	0	0
Dairy Shorthorn Association	..	..	10	0	0
E. Ezra, Esq.	..	..	17	0	0
Hereford Herd Book Society	..	..	20	0	0
Sussex Herd Book Society	..	..	17	0	0
Red Poll Cattle Society	..	..	34	0	0
English Aberdeen-Angus Cattle Association	..	..	10	0	0
British Friesian Cattle Society	..	..	30	0	0
English Jersey Cattle Society (or Medal)	..	..	20	0	0
English Guernsey Cattle Society	..	..	30	0	0
English Kerry and Dexter Cattle Society	..	..	15	0	0
South Devon Flock Book Association	..	..	10	0	0
Kent or Romney Marsh Sheep Breeders' Association	..	..	17	0	0
Southdown Sheep Society	..	..	17	0	0
Hampshire Down Sheep Breeders' Association	..	..	20	0	0
Oxford Down Sheep Breeders' Association	..	..	10	0	0
Dorset Horn Sheep Breeders' Association	..	..	17	0	0

Carried forward .. £3790 7 6

	Brought forward	..	£3790	7	6
Dorset Down Sheep Breeders' Association .. ..		..	15	0	0
Exmoor Horn Sheep Breeders' Society .. ..		..	10	0	0
Dartmoor Sheep Breeders' and Flock Book Association ..		..	10	0	0
Suffolk Sheep Society .. ..		..	25	0	0
Ryeland Flock Book Society .. ..		..	15	0	0
British Goat Society .. ..		..	16	7	6
British Berkshire Society .. ..		..	9	0	0
Large Black Pig Society .. ..		..	50	0	0
National Pig Breeders' Association .. ..		..	20	0	0
Long White Lop-Eared Pig Society .. ..		..	20	0	0
Gloucestershire Old Spots Pig Society .. ..		..	20	0	0
Wessex Saddleback Pig Society .. ..		..	30	0	0
Trustees of John Boscawen Prize Fund, Cornwall ..		..	6	0	0
G. J. L. Lang, Esq., J.P., Saltash .. ..		..	2	2	0
Devon County Agricultural Committee .. ..		..	31	10	0
			<hr/>		
			£4070	7	0

(In addition to the above, prizes are offered for Allotments and Small Holdings and for Milk-Recorded Herds and Clean Milk Production, towards which the President (H.R.H. The Prince of Wales, K.G.), the Deputy President (Lord Clinton), Lord Astor, The Plymouth Local Committee, the Devon County Agricultural Association, Mr. G. Martyn, and the Members of the Devon County Council Small Holdings Committee contribute).

DONORS OF MEDALS, PLATE, ETC.

The President (H.R.H. The Prince of Wales, K.G.); Bath and West Society; Devon County Agricultural Association; Shire Horse Society; Hunters' Improvement and National Light Horse Breeding Society; Welsh Pony and Cob Society; National Pony Society; Hackney Horse Society; Rotary Club of Plymouth; J. F. Winnicott, Esq. (Mayor of Plymouth); Major A. C. Morrison-Bell, M.P.; Major E. F. Morrison-Bell; South Devon Herd Book Society; Western Morning News and Mercury; Sir Henry Lopes, Bart.; Shorthorn Society; Aberdeen-Angus Cattle Society; English Aberdeen-Angus Cattle Association; Sussex Herd Book Society; Captain G. H. Johnstone; English Kerry and Dexter Cattle Society; English Guernsey Cattle Society; English Jersey Cattle Society; A. T. Loran, Esq.; P. Whitton, Esq.; Col. G. Craven Hoyle; Southdown Sheep Society; British Goat Society; British Berkshire Society; National Pig Breeders' Association; Gloucestershire Old Spots Pig Society; Wessex Saddleback Pig Society; Poultry Club.

IMPLEMENTS.

The site of the Show being composed of somewhat hilly ground, it was no easy matter to arrange suitable stands for the numerous exhibitors of machinery, feeding stuffs, etc., especially as the embankment round the ring interfered with many positions usually looked upon as among the most favourable. The avenues, however, were so arranged that every part of the Show ground received a full contingent of visitors. The space taken by the exhibits compared very favourably with that taken in previous years as will be seen from the following table:

				PLYMOUTH.		
				1873	1902	1922
Machinery in Motion	..	..	..feet run	420	1008	1624
Agricultural Implements	..	..	..		2790	1460
Other Exhibits not strictly Agricultural	..	..	..	4777	759	540
Seeds, Cattle Foods, Artificial Manures, etc.	..	..	..		1100	1210
				5197	5657	4834
Open Space for Farm and Horticultural Buildings, etc.	..	..	.. sq. feet	5616	17987	39485

MISCELLANEOUS DEPARTMENT.

As separate reports will be found of the Small Holders and Allotments Competitions, besides the reports on the ordinary sections of the Show yard, it is not proposed to deal with them here, except to say that the Allotments competition created much interest, and that it is hoped that a considerable improvement in the cultivation of all allotments in the neighbourhood will be observed as a result of the competition. The prizes were distributed later at the St. Budeaux flower show by Lord Mount Edgecumbe.

The number of addresses delivered in the Show yard was reduced from five to three, as it was found that it was difficult to secure adequate attendance on the first and last days. The addresses were given by Prof. D. A. Gilchrist on Seeds Mixtures, by Prof. D. R. Edwardes-Kerr, O.B.E., on the Feeding of Cows, and by Mr. G. F. Buvington on Utility Poultry. They were afterwards printed and distributed to Members of the Society, while there has also been a considerable demand for copies of the addresses from other sources. It may be said of the Plymouth Show that the educational side in general has never reached a higher level. It would have been noteworthy if only for the exhibits from Bristol University and from the Long Ashton Institute, while the technical side was remarkable for the fruit packing and grading demonstrations arranged by the Ministry of Agriculture, and for the short lectures delivered by Mr. Abbiss of the Devon County Council.

The horticultural exhibit was this year adequately housed in a new tent and attracted to it nearly every visitor to the yard. Members of the Society will learn with the greatest regret that this will be the last exhibit under the stewardship of the Rev. A. T. Boscawen, who has made such an outstanding success of his department for 20 years.

COMPETITIONS.

Entries in the competitions were very satisfactory, only the limited space available preventing a large increase in those for butter-making, while the entries in the shoeing competition show that Devon and Cornwall are still the home of the hunter, a fact born out by the keen competitions in the ring events.

ENTRIES IN COMPETITIONS FOR MEN AND WOMEN.

						PLYMOUTH.		
						1873	1902	1922
Butter-Making	..	..	..	..	..	—	117	110
Milking..	..	..	..	..	..	—	16	18
Shoeing	..	..	..	..	..	14	86	65
						<hr/>	<hr/>	<hr/>
						14	219	193

Perhaps a word may be said here in praise of the Show Yard staff, and especially of the Boy Scouts whose keenness enabled the results of the judging on the opening day to be posted to the satisfaction even of the representatives of the press.

ATTENDANCE.

The attendance though not quite reaching the figures of the 1873 Show, was highly satisfactory in view of the trade depression from which Plymouth was suffering. No alteration was made in the charges for admission.

NUMBER OF ADMISSIONS.			ADMISSION RECEIPTS.		
Plymouth,			Plymouth.		
1873.	1902.	1922.	1873.	1902.	1922.
62,409	54,036	58,269	£4,339	£4,130	£9,095

VIII.—REPORT ON THE SOCIETY'S DAIRY DEPARTMENT AT PLYMOUTH.

By A. F. Somerville, Steward.

The Society bought the milk of the cows in the Show Yard at 9d. per gallon, and utilized it entirely for sales at the "Pavilion," under the "Sales of Produce Department," the quantity being insufficient to depend upon for the provision of cream for the Butter-

making Competitions, which latter was obtained from the West Cornwall Creameries at 10s. per gallon, and averaged about 5lbs. butter to the gallon of cream.

The Dairy Department was divided as follows :—

- (1) *Produce Department*.—For exhibits in sheds of cheese, butter and cream.
- (2) *Working Dairy*.—In which butter-making competitions were held and demonstrations given by the Staff.
- (3) *Test Department*.—For the “Butter Test” and “Milking Trials.”
- (4) *Sales of Produce Department*.—Where milk and its products, made in the Working Dairy, were sold.

As at Bristol, so at Plymouth, it was found impossible to get cows brought into the Show yard for the Milking Competitions, but, thanks to the kindness of Messrs. Cundy & Son, who provided some fine Devon cows, the competitions were held at Cross Park Farm, a short distance from the Yard. The Judge, Mr. W. H. Porter, reported very favourably on the results, and the arrangements for the competitions were ably carried out by Mr. A. T. Loram, the Assistant Steward.

The *Produce Department* was under the control of Mr. A. H. Gibbs, as Steward, and the exhibits were judged: Cheese by Mr. W. A. Titley, Bristol; and Cream Cheese, Butter and Cream, by Mrs. Stevens, Ditchford Farm, near Moreton-in-Marsh, Glos., and Mrs. Luke, Plymouth.

The *Working Dairy* was under the control of Mr. A. H. Gibbs, as Steward, with Miss Evelyn Bray, the Dairy Instructress for the Devon County Agricultural Committee as Chief Assistant, assisted by Miss Ireland, Dairy Instructress for Seale-Hayne College, Miss Mollins, Assistant Dairy Instructress for the Devon County Agricultural Committee, and Miss Hoskins, a student under the Cornwall Education Committee. Mrs. Stevens was Judge for the Butter-making Competitions.

For the *Test Department*, Captain E. A. B. Clive was the Assistant Steward and Miss A. S. W. Nicholas, Dairy Organiser for the Cornwall Education Committee, the Chief Assistant. The judging of the Butter Tests and Milking Trials was carried out by myself with the assistance of Mr. T. Hammond, Secretary of the English Jersey

Cattle Society, and Dr. J. A. Voelcker, who took the samples and made the analyses of the milk.

The *Sales of Produce Department* was under the control of Miss M. C. Taylor, from the Staff of the Somerset Agricultural Committee, and she was assisted at "The Pavilion" by Miss Masters, a cheese instructress on the same staff, and Miss Mackie, a student under that Committee; while Mr. V. Read, Bath, and Captain E. A. B. Clive undertook the whole work of purchasing the milk, distributing it, and the Dairy Products, and keeping the accounts.

WORKING DAIRY.

On the first day, Demonstrations were given in the making of butter, scalded cream and small holders' hard-pressed cheese, the milk from Devon cows being used. In the afternoon there was a Butter-making Competition for children under 14 and attending school, for which 20 entered.

On the second day Demonstrations were given in the making of scalded cream and small holders' cheese, 6 gallons of milk being used for each cheese. Two methods of butter-making were shown, one following the "Show Yard" system, the other the "Farm House" method. In the afternoon there was a Butter-making Competition for men and women, bona fide workers on a farm, for which 20 entered.

On the third day the butter for the test was churned early in the morning, and this was followed by a Butter-making Competition for students who had received instruction at any County Council School for Dairying, for which 20 entered; in the afternoon there was another Butter-making Competition for boys and girls under 15 and who had attended classes held by the Devon County Council, for which seven entered; the prizes for this competition being given by the Devon County Agricultural Committee.

On the fourth day of the show Demonstrations were again given in the making of butter, scalded cream and soft cheeses, and there were two Butter-making Competitions; one in the morning for men and women who had attended classes held by the Devon County Agricultural Committee (who also offered the prizes), for which 16 entered; the other in the afternoon, for men and women, for which 20 entries were received.

On the last day of the Show Demonstrations were given in the morning, similar to those carried out on previous days, and in addition, the testing of milk for butter-fat by the Gerber Tester was

MILK TEST.
FOR COWS UNDER 950LBS. LIVE WEIGHT.

No.	Owner and Cow.	Breed.	Date of Birth.	Date of last Calf.
CLASS 127.				
419	Mrs. Rudd's "Cygnus 3rd" ..	Jersey	21/9/16	25/1/22
420	Mrs. Rudd's "Fire King's Tidy" ..	"	2/5/18	1/2/22
421	Mr. R. Bruce Ward's "Elfrida" ..	"	26/6/17	18/4/22
422	Mr. R. Bruce Ward's "Piquant" ..	"	21/4/19	15/5/22
423	Sir G. Stanley White, Bart., "Freesia of Hollywood"	"	22/5/17	16/1/22
545	Lady K. Hare's "Peach Blossom of Claragh"	Dexter	21/2/17	19/4/22
552	A. C. King's "La Mancha Madeline"	"	—/3/13	5/5/22
553	Mr. E. P. Peyton's "Patti 5th" ..	"	21/1/18	26/4/22
554	Mr. E. P. Peyton's "Pierrette 2nd"	"	29/4/15	12/5/22
568	Mr. T. A. Stephen's "Hookstile Claribel"	"	20/2/20	2/4/22
569	Mr. T. A. Stephen's "Hookstile Lady Macbeth"	"	30/6/20	2/4/22

MILK TEST.

FOR COWS UNDER 950LBS. LIVE WEIGHT.

Days in Milk.	Service.	Milk Yield.	Points for Milk.	Lactation.	Total.	Awards.
		lb. oz.				
128	23/4/22	37 8	37.50	8.80	46.30	1st Prize
121	13/4/22	30 8	30.50	8.10	38.60	
45	N.S.	44 4	44.25	.50	44.75	2nd Prize
18	N.S.	41 0	41.00	nil	41.00	3rd Prize
137	24/4/22	31 0	31.00	8.00	39.60	
44	N.S.	35 8	35.50	.40	35.90	Deficient in Fat and Solids
28	N.S.	38 12	38.75	nil	38.75	Kerry and Dexter Gold Medal
37	N.S.	33 0	33.00	nil	33.00	Deficient in Fat
21	N.S.	26 0	26.0	nil	26.00	Kerry and Dexter Silver Medal
61	N.S.	9 12	9.75	2.10	11.85	Deficient in Fat and Solids
61	N.S.	15 4	15.25	2.10	17.35	Kerry and Dexter Bronze Medal

MILK TEST.**FOR COWS 950LBS. LIVE WEIGHT OR OVER.**

No.	Owner and Cow.	Breed.	Date of Birth.	Date of last Calf.
CLASS 128.				
130	Mr. W. G. Busk's "Wraxall Blue-bell"	Devon	—/—/15	5/4/22
131	Mr. W. G. Busk's "Wraxall Betty"	"	—/—/15	6/4/22
132	Mr. J. H. Chick's "Wynford Broad C"	"	15/3/18	3/5/22
133	Mr. J. H. Chick's "Wynford Pill C"	"	23/7/13	14/5/22
201	Messrs. T. Cundy & Son's "Rosebud"	S. Devon	28/10/16	10/4/22
258	Sir Clifford Cory's "Lady Cressida"	Shorthorn	1/2/18	14/5/22
355	Major J. A. Morrison's "Brightwell Clintvar"	Red Poll	1/1/13	3/3/22
356	Major J. A. Morrison's "Sudbourne Fascination"	"	10/11/13	19/5/22
386	Messrs. Sayers' "Golt Phœbenijn"	B. Friesian	23/6/16	7/4/22
588	Messrs. T. Cundy & Son's "Crocus"	S. Devon	?	11/5/22
415	Mrs. Evelyn's "Fairlawne Hussey"	Jersey	8/8/16	6/2/22
CLASS 129—RED POLLS				
355	Major J. A. Morrison's "Brightwell Clintvar"	See above	..	..
356	Major J. A. Morrison's "Sudbourne Fascination"	See above	..	..

MILK TEST.

FOR COWS 950LBS. LIVE WEIGHT OR OVER.

Days in Milk.	Service.	Milk Yield.	Points for Milk.	Lactation.	Total.	Awards.
		lbs. oz.				
58	N.S.	66 8	66-50	1-80	68-30	1st Prize
57	N.S.	38 0	38-00	1-70	39-70	
30	N.S.	37 0	37-00	nil	37-00	2nd Prize
19	N.S.	54 4	54-25	nil	54-25	
53	N.S.	48 8	48-50	1-30	49-80	
19	N.S.	26 12	26-78	nil	27-75	3rd Prize
91	N.S.	44 8	44-50	5-10	49-60	Deficient in Fat and Solids
13	N.S.	48 4	48-25	nil	48-25	Deficient in Fat and Solids
56	N.S.	44 8	44-50	1-60	46-10	Deficient in Fat and Solids
22	N.S.	53 8	53-50	nil	53-50	Deficient in Fat and Solids
116	5/4/22	40 12	40-75	7-60	48-35	H.C.
..	..	..	..	..	..	} No awards
..	

BUTTER TEST.**PARTICULARS OF COWS TESTED, YIELDS OF MILK AND BUTTER, AWARDS, ETC.**

No.	Owner and Cow.	Date of Birth.	Date of last Calf.	No. of Days in Milk.
CLASS 109—JERSEY.				
415	Mrs. Evelyn's "Fairlawne Hussy" ..	8/8/16	6/2/22	116
419	Mrs. Rudd's "Cygnus 3rd"	21/9/16	25/1/22	128
420	Mrs. Rudd's "Fire King's Tidy" ..	2/5/18	1/2/22	121
421	R. Bruce Ward's "Elfrida"	26/6/17	18/4/22	45
422	R. Bruce Ward's "Piquant"	21/4/19	18/5/22	18
423	Sir G Stanley White's "Freesia of Hollywood"	22/5/17	16/1/22	137
425	Col. Gisborne's "Distressed Lady" ..	26/4/15	4/4/22	59
426	Col. Gisborne's "Joylaugh"	12/4/18	20/4/22	43
CLASS 116—GUERNSEY.				
479	Mrs. Bainbridge's "Tregonning Lucky" ..	30/8/18	4/2/22	118
480	Mrs. Bainbridge's "Governs Golden" ..	18/12/14	9/1/22	144
484	Earl of Mount Edgecumbe's "Cotehele Candy"	5/5/14	2/4/22	61
485	Ven. Archdeacon Raffles Flint's "Ladock Princess Maud"	11/4/17	3/4/22	60

BUTTER TEST.

PARTICULARS OF COWS TESTED, YIELDS OF MILK AND BUTTER, AWARDS, ETC.

Milk Yield in 24 Hours.	Butter Yield.	Ratio, viz., lbs. Milk to lbs. Butter.	Points for Butter.	Lactation.	Total Points.	Awards.
lb. oz.	lbs. oz.					
40 12	2 0	20-37	32-00	7-00	39-00	2nd Prize, Silver Medal
37 8	2 3 $\frac{1}{4}$	17-02		8-80	44-05	1st Prize, Gold Medal
30 8	1 5 $\frac{1}{4}$	22-96	21-25	8-10	29-35	
44 4	2 0 $\frac{1}{4}$	21-61	32-75	.50	33-25	Cert. of Merit
41 0	2 6	17-26		nil	38-00	Cert. of Merit
31 0	1 15 $\frac{1}{4}$	15-87	31-25	8-00	30-25	3rd Prize, Bronze Medal
39 12	1 11 $\frac{1}{4}$	23-33	27-75	1-90	29-15	
25 0	1 3 $\frac{1}{4}$	20-25	19-75	.30	20-05	
28 12	1 8 $\frac{1}{4}$	18-77	24-50	7-80	32-30	3rd Prize
23 12	1 11 $\frac{1}{4}$	13-94	27-25	10-40	37-65	2nd Prize
33 0	1 8	22-00	24-00	2-10	26-10	
33 0	2 4 $\frac{1}{4}$	14-36	36-75	2-00	38-75	1st Prize

illustrated; in the afternoon the Competition for the Society's medals was held, the gold medal being won by Mrs. M. Pooley; the silver medal by Miss C. Pantall, and the bronze medal by Miss R. D. Every, Miss J. A. Every being placed Reserve.

In the Demonstrations of making scalded cream, 2 gallons of milk from Jersey cows were used for each pan. Great interest was shown and many questions were asked while the demonstrations were being given, and throughout the whole time there was a large attendance of the public at the "Working Dairy." The alterations made this year enabled more to watch the work in progress; and both from an educational and popular aspect the Working Dairy was a successful feature of the Show.

TEST DEPARTMENT.

The cows in the Milking Trials and Butter Tests were stript on the first day of the Show at 5 p.m. and 5.30 p.m. and milked the following day at 7 a.m. and 7.30 a.m. and again at 5 p.m. and 5.30 p.m. for "first" and "second" milking respectively. The samples for the Milking Trials were taken and analysed by Dr. J. A. Voelcker.

The milks for the Butter Test were separated immediately after milking and the creams were churned on the third day, churning commencing at 7 a.m. and finishing at 9 a.m.

The cows competing in the Milking Trials were divided into two Classes —

Class 127 for cows under 950lbs. live weight.

Class 128 for cows 950lbs. live weight or over.

The prizes for these classes were given by the Society and in addition, Gold, Silver and Bronze Medals were offered by the English Kerry and Dexter Cattle Society for the three best Dexter cows competing in Classes 127 and 128.

Prizes were also offered in a special class for Red Polls under 950lbs. live weight, but no animal of this breed qualified for a prize.

The cows competing in the Butter Test were divided into two Classes: Class 130, for Jerseys, the prizes, Gold Medal or £10, Silver Medal and Bronze Medal, being given by the English Jersey Cattle Society; Class 131, for Guernseys, the prizes, £5, £3 and £2 being given by the English Guernsey Cattle Society.

The preceding tables give the results for the Milking Trials and Butter Tests.

MILKING TRIALS.

The average yield of the cows in the various breeds, together with the average number of days in milk is given in this table :—

	<i>Breed.</i>	<i>No. of Cows.</i>	<i>Yield.</i>	<i>Days in Milk.</i>
CLASS 127	.. Jersey ..	.. 5	36·85lbs.	89·8 days
	.. Dexter ..	.. 6	27·37 „	42·0 „
CLASS 128	.. Jersey ..	.. 1	40·75 „	46·0 „
	.. Devon ..	.. 4	48·94 „	41·0 „
	.. South Devon ..	.. 2	51·0 „	37·5 „
	.. Red Poll ..	.. 2	46·37 „	52·5 „
	.. Friesian ..	.. 1	44·5 „	56·0 „
	.. Shorthorn ..	.. 1	26·75 „	19·0 „

My thanks are due to Miss Nicholas, and the ladies who assisted at the Churning, and also to Mr. T. Hammond, Secretary of the English Jersey Cattle Society, for the valuable assistance given in connection with the Butter Test.

MILKING COMPETITION FOR GOATS.

These competitions were carried out on conditions similar to those mentioned in the Report of the Bristol Show, but proper scales for weighing the milk had been provided by the British Goat Society, so it was possible to weigh down to half an ounce. Dr. Voelcker took the samples and subsequently made the analyses of the milk.

Only five animals competed. Miss Skidmore won 1st, 2nd and 3rd Prizes with her three animals, "Heddon Speedwell," "Heddon Annie" and "Cerise," but no Q star was awarded as the butter-fat of the 1st and 2nd prize winners was under the standard, *i.e.*, 4 per cent. The following Table gives the results :—

<i>Catalogue Number.</i>	<i>Fat Percentage.</i>		<i>Milk.</i>	<i>Points Lactation.</i>	<i>Fat.</i>	<i>Solids.</i>	<i>Total.</i>	<i>Award.</i>
	<i>a.m.</i>	<i>p.m.</i>						
791 ..	3·30	3·80	9·12	1·0	6·11	2·96	19·49	1st Prize.
792 ..	3·25	3·55	8·93	·5	6·02	2·94	18·39	2nd Prize.
788 ..	3·20	3·85	7·68	·8	5·34	2·41	16·23	3rd Prize.
789 ..	4·05	4·30	2·78	4·7	2·30	·99	10·77	
790 ..	3·35	3·70	3·81	1·8	2·66	1·27	9·54	

SALES OF PRODUCE DEPARTMENT.

A very convenient Pavilion had been erected near the Working Dairy, at which milk, cream, butter, soft and hard cheeses and junkets were sold. The latter were made a speciality this year and

the demand for them exceeded the supply. Practically all the milk bought in the Yard was sold as milk and its products at the Pavilion, and more could have been disposed of had it been available, and, in addition to the Pavilion being a great convenience to visitors at the Show, it had its educational side in the making of junkets.

We were indebted to the Horticultural Department for gifts of flowers, which much added to the attraction of the Pavilion.

My thanks are especially due to Captain Clive and Mr. Read, who gave up their whole time to the work of purchasing the milk, supplying the Pavilion and keeping the accounts. Miss Taylor and her two energetic assistants were actively employed nearly the whole time that the Show was open.

The thanks of the Society are also due to the County Agricultural Committees of Devon, Cornwall and Somerset for allowing the members of their staffs to give us such valuable assistance, and I cannot conclude without a tribute of praise to Mrs. Stevens, whose judging in the Butter-making Competitions gave universal satisfaction.

IX.—THE FORESTRY SECTION AT PLYMOUTH.

By G. Lipscomb.

The Forestry Section at Plymouth was in some respects not up to the standard of recent Shows, owing to the want of West Country entries, and this was especially noticeable in the classes for planks in which there were few entries and no competition. In the class for exhibits not for competition there were, however, some excellent and most instructive exhibits, and to these, and to the two Land-owners who entered in Class 1, such success as was attained by the Forestry Section was due. The aim of the Society has all along been to call attention to the real and practical advantage of using home grown timber; and in so doing to encourage the Home Industry, and if this policy is to be carried out it will need the help and co-operation of all growers of home timber even more fully than in the past.

In Class 1 the Gold Medal was again won this year by Capt. The Hon. R. P. E. Erle-Drax, of Charborough Park, and great pains had been taken to enlarge and improve the exhibit from this Estate, so as to cover practically the whole ground over which a Forester

works, and in which he encounters the innumerable troubles and difficulties due to disease, insect and fungoid pests, etc. This exhibit reflected very great credit on Mr. Munro, the Estate Forester. Sir Henry Hoare again sent an excellent collection of mounted and named specimens of conifer foliage which is of much interest and value especially to owners of the more uncommon conifers. The Boards were a very poor class indeed, Enham Village Centre being the only contributors, and in this connection it was a source of disappointment that growers of timber in Devon and Cornwall did not support the Forestry Section. Deficiency, however, in this respect was, as above stated, to some extent, made up by the excellent exhibits in the non-competitive classes. The English Forestry Association sent an exhibit that helped to focus attention on the uses to which English Timber can be profitably put, notably the paving of streets with elm blocks and the uses of elm and other home grown timbers in the manufacture of high class furniture.

The Forestry Commission sent a valuable, instructive and comprehensive exhibit, including a map which indicated by flags the increasing number of areas in which the Commission are undertaking planting schemes.

The Royal Botanic Gardens, at Kew, again sent in charge of Mr. Dalimore—whose presence always adds to the educational value of the Forestry Section—their excellent and careful exhibit of seeds, photographs and specimens of timber.

The Hon. Mrs. Smyth (per Mr. H. B. Napier), ably assisted the Section by an excellent exhibit of general interest, including elm worked up into doors and dado and, among samples of damage by various pests, a specimen which called timely attention to the work of the "human pest." it is not generally realized how much damage is done to young plantations by blackberryers and other trespassers.

The Great Western Railway Co. sent specimens of sleepers made of English timber creosoted, which called attention to the fact that English timber, so treated, is perfectly suitable for railway work. The same Company also sent—among specimens indicating the use to which English timber could be put—some ash worked up for the purposes of railway carriage building, showing the suitability of home grown timber, not only for rougher railway work, but also for the fine work of carriage making.

Lord Clinton sent from South Devon specimens of English timber worked up, showing that it is admirably suited for the purposes of making doors and windows for Estate or other purpose.

Before closing this report I should like to mention specially the

excellent work of Mr. H. W. Abbiss, whose services were kindly put at the disposal of the Society by the Devon County Council, in the demonstration area connected with the Forestry Section. This area was well stocked with fruit trees by the Society, and on these Mr. Abbiss demonstrated at stated and advertised intervals during each day of the Show. These demonstrations were most valuable, and Mr. Abbiss was always willing to take up and explain to those who were interested, any particular point, outside the hours of the regular demonstrations.

The Society hope that the interest invariably taken in these demonstration areas goes to prove the practical value of this addition to the Forestry Section.

The thanks of the Society are again due to Mr. H. A. Pritchard for kindly acting as judge.

X.—NATURE STUDY AND HANDICRAFTS.

By H. M. Cundall, I.S.O., F.S.A.

When the Society was founded in 1777 for the encouragement of Agriculture, Arts, Manufactures and Commerce, its activities were at first confined to agriculture, but in the year 1859 Sir Thomas Acland, 1st Bart. and other members of the Council conceived the idea of developing an Arts Section. They organised an exhibition of paintings at the Show held at Barnstaple in that year, with a view to encouraging artistic taste amongst the rural population. A collection of pictures by deceased and living painters was arranged, including some drawings by J. M. W. Turner, R.A. These attracted considerable attention, especially of some of the great painter's relations, who were artizans living at the time at Barnstaple. The fine Art Exhibitions were continued yearly in the various towns at which the Show was held, until the beginning of the present century when it was felt that they had sufficiently served their purpose, particularly as the public were now enabled to acquire a knowledge of art from the numerous Galleries founded by Municipal Authorities. At this period the teaching of Nature Study had commenced at Elementary and Secondary Schools, and in order to utilize the portable buildings, constructed for the Art Exhibitions, the Society decided in future to devote them for the purpose of holding exhibitions of Nature Study. At first the selection of the exhibits to be shown from the schools was left in the hands of the

teachers, consequently there was no organised arrangement and a considerable overlapping in the works of the students resulted. Later it has become the custom to approach the Local Education Authorities and by their aid systematic and co-ordinated displays have been arranged. The educational value thus being greatly increased. Handicrafts, including gardening, now extensively introduced into the curriculum of the schools, have been also included in the Exhibitions. At the Show, held at Plymouth, the Devon County Education Committee and that of Plymouth jointly arranged a most interesting display of Students' works, fully illustrating the valuable educational work which is being carried on in the West of England. Practical instruction has made considerable progress. In Devonshire it is not given by special visiting teachers, but is left to the ordinary teaching staff. Hence the exhibits at Plymouth were of a very varied character, due to the freedom allowed to teachers to develop any lines of work which appeal to them and their pupils. This development of practical work in all schools is stimulating the intelligence of the children and fitting them for the future struggle of life.

The wisdom of the Society in turning its attention from Art to Nature was fully exemplified at Plymouth. Those engaged in agricultural pursuits were enabled to gain much practical and scientific information from the exhibits displayed by the various Agricultural Colleges; they were readily explained by the representatives in attendance. Whilst the work done by pupils in the schools under the Educational Committees helped to stimulate the interest of the younger generation in the study of Nature. It is to be hoped that it may have had some influence, even if slight, in helping to conserve them to the land and to check the migration to manufacturing centres. In order to fully demonstrate the system carried out by the Educational Committees, the work of the individual schools was not shown separately, but grouped together according to subjects.

The Nature Study Exhibits consisted chiefly of drawings by pupils illustrating the development of plants and trees, studies being taken at intervals of one to two weeks. Collections of dried plants and living wild flowers taken from hedge rows formed an interesting feature. The Ivybridge Council School showed a sheet illustrating the method adopted to produce a comprehensive botanical survey of the district, including a table of localities allotted to different children, and specimens of the sketch maps made by them to show the habitats of uncommon plants. In order to guard against the danger of exterminating rare wild flowers, the children are instructed

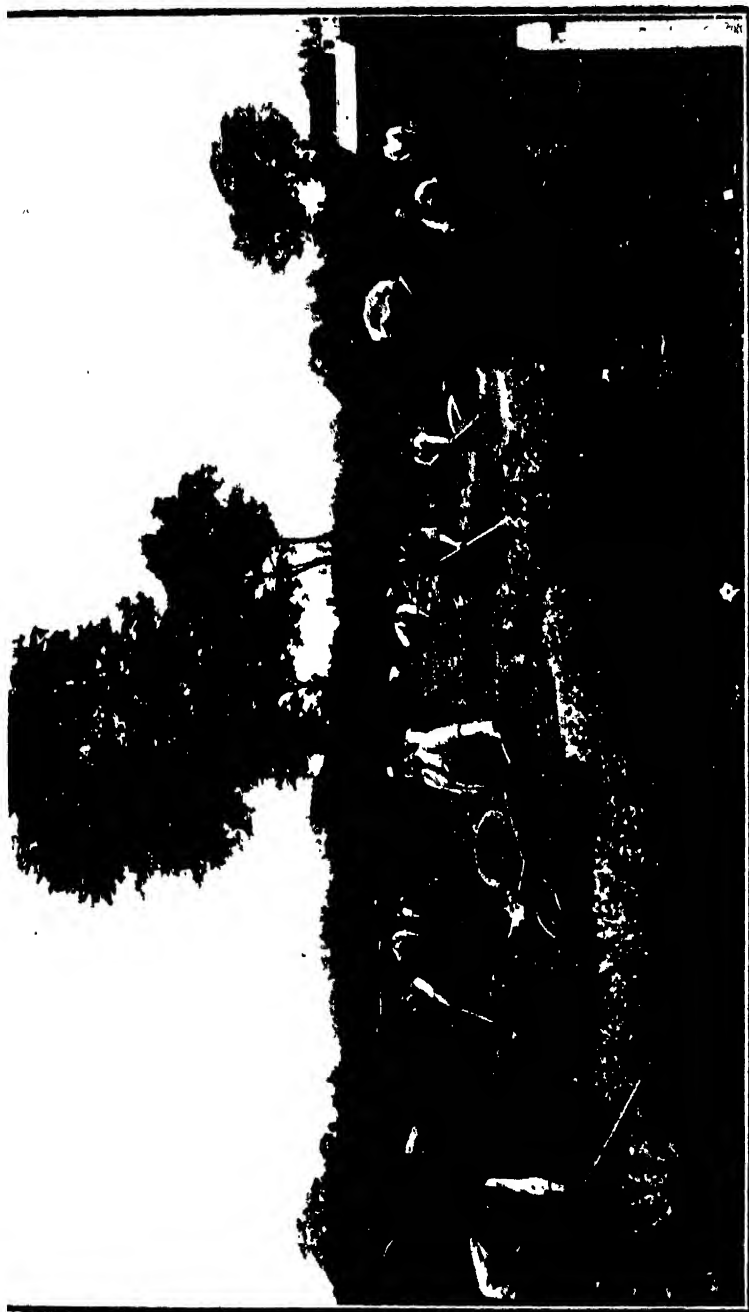
not to bring the plants to the school, but to make sketch maps showing where they may be found. Drawings of birds and insects, illustrations of pond life, models and maps showing coast erosions, all made by children, demonstrated the interest shown by them in studying Nature.

A special feature in the curriculum of study is School Excursions, and records of them were given in the form of some excellent photographs. One showed a visit to the Lee Moor China Clay Works by Prince Rock Girl's Council School, in which they are seen at work. There was besides a clever model made by the girls of the works, a case of specimens of the different minerals found together with examples of refined china clay.

School gardens, under the supervision of the Agricultural Committee, are attached to many of the Elementary Schools in Devon. The exhibits from them included coloured studies of plants and insects, tools, apparatus and plans of the gardens all made by the pupils; also a small quantity of garden produce, such as rhubarb, gooseberries, etc., of excellent quality were to be seen. Photographs of some of these school gardens showing the pupils at work helped to give an idea of the useful instruction imparted to them. That at Topsham Boys' Council School was originally an old gravel pit, used as a dumping ground for rubbish. It has been enclosed, drained, cleared and cultivated entirely by the boys.

The Handicraft Section was of a very varied character, due as already mentioned to teachers being allowed to follow any lines in which they were most interested. The high level of work exhibited was probably the result of this latitude of choice. The specimens produced by boys, chiefly executed in wood and metal, were exceptionally good considering their ages. A model of Brunell's Saltash Bridge over the river Tamar by two boys aged respectively twelve and fourteen years deserves special mention. The mechanical models produced at the Plymouth Junior Technical School and hand carving from the School of Art were also examples of excellent work of a higher grade. The needlework done by the girls gave a comprehensive view of the instruction carried on in the various classes of the schools. The lace made by girls from 12 to 14 years of age at the Honiton and other Schools showed that this industry is not being allowed to die out in East Devon. Specimens of garments made from materials woven by the children themselves were sent from Dean Prior School, including a scarf made from wool gathered, carded, dyed from a dye found in the roots of heather, spun and woven by the children.

The section devoted to Colleges and similar institutions was well



TOPSHAM BOYS' COUNCIL SCHOOL.
THE SCHOOL GARDEN.



SEALE-HAYNE AGRICULTURAL COLLEGE.
STUDENTS GRAFTING.

represented. The Seale-Hayne Agricultural College exhibited potatoes in pots showing the effect of Leaf Curl on the growth ; plants used in the manufacture of Feeding Stuffs ; growing weeds with enlarged coloured drawings of their seeds ; specimens of grasses and leguminous plants ; growth of trees useful to farmers with specimens of their timbers ; various cheeses ; curds made from dirty and clean milk ; selection of fowls for egg-laying shown by two pullets of different conformation ; mechanical analyses of typical soils in Devonshire ; and enlarged paintings of insects beneficial to the farmer. The Exeter University, Teachers' Training Department contributed specimens of the work of the students in training, comprising tooled leather work, linoleum block printing, wood carving and needlework. The exhibit from the Exeter Diocesan Training College, mostly the work of ex-service men, consisted of numerous articles excellently made in wood and metal, including cabinet work, repoussé work, etc., together with working drawings. The Mendeliev experiment was shown by living poultry with charts showing the steps taken and results obtained. The Devon Agricultural Committee demonstrated the improvement of grass land by specimen turfs treated with fertilisers ; the result of different phosphate manures shown by pots of growing beans, vetches and oats ; models of appliances for poultry farming ; and the cultivation of fruit and vegetables. The Cornwall County Council's exhibit showed the work carried out in the county in agricultural and horticultural education. It consisted of a map of the county shewing the centres at which winter classes had been held, together with particulars of the work of the students attending these classes ; diagrams dealing with sand taken from Cornish beaches and dunes for the sake of the lime ; charts demonstrating the importance of sowing the best seeds ; charts illustrating apple growing at the County Council Experimental Plot at Gulval, Penzance, also a collection of varieties of potatoes grown there. The exhibit specially emphasized its campaign in favour of pure seeds and the need of lime on Cornish soils. Various societies sent contributions to the exhibition. The Plymouth Marine Biological Association illustrated the stages in the life history of the fish at Plymouth, including that of the eel, also qualities of the drinking and stream water in the neighbourhood of the town. The Devon and Cornwall Institution for the Blind gave practical illustrations of machine-knitting and chair-caning, at which two blind women worked. The Devon and the Cornwall Federation of Womens' Institutes showed needlework, lace, handwoven homespuns, gloves, basketry, toys and other articles made at village centres.

The University of Bristol having made an exhibit of exceptionally educational value at the Show held in that city last year, was specially invited by the Society to make another contribution at Plymouth. To this invitation the University acceded, and a special building was allotted to it. Three departments of the University were represented, namely those of Botany, Geology and Agricultural and Horticultural Research, to the latter being attached the Fruit and Vegetable Preserving Experimental Station, Campden.

The exhibit from the Department of Botany was comprised in three sections, selected with a view to demonstrating the importance of the science of Botany to all those who are concerned with the culture of plants. (1) The conditions necessary for the formation of starch (and sugar) by green plants was illustrated by means of a series of simple experiments, accompanied by a suitable diagram and explanatory captions. Incidentally the dependence of all life on the ability of green colouring matter of plants to form complex organic substances was indicated. (2) Diseases of the Potato. This exhibit consisted of preserved specimens, living diseased tubers, pure cultures of the attacking fungus and microscopical preparations showing the effect of the fungus on the potato. A diagram showed which parts of the plant were attacked by the various fungi and the source of infection. (3) Bracken. A number of specimens were shown to illustrate the life history of the Bracken fern, and some of the difficulties encountered in its extirpation from land of agricultural value were demonstrated.

The Department of Geology included minerals which are of agricultural importance, specimens and photographs illustrating the weathering of rocks and the production of soil, diagrams illustrating water supply and contamination and maps of the geological formation of the Plymouth area.

The Department of Agricultural and Horticultural Research, with which is associated the National Fruit and Cider Institute, Long Ashton, provided an extensive series of exhibits illustrating its research work on problems of fruit culture, diseases of agricultural and horticultural crops, and cider making.

(1) Under the head of fruit culture, several sets of strawberry plants were shown exhibiting the various effects obtained by omitting essential food constituents from the manurial treatment to which they had been subjected. Examples of testing soils by mechanical and chemical analysis to determine their suitability for fruit culture were included, and an illustration of the effect of soil composition on the growth of fruit trees was provided by a series of exhibits demonstrating the association of "Leaf Scorch" disease with soils

of certain character. Also relating to the problems of fruit production where various exhibits showing the action of the operation of "ringing" or "girdling" in stimulating bud growth and the formation of fruit buds. A series of photographs indicated the manner in which the root-systems of fruit trees establish themselves and form new growth after transplantation and the importance of aeration for healthy root-production.

(2) An extensive collection of pests and diseases of various crops was accompanied by illustrations of methods of disease control. In some instances, e.g., the diseases of Apple Tree Canker and Reversion of Black Currants, the various stages in their development were exhibited in some detail.

(3) The problems of cider making associated with the action of various organisms of fermentation on apple juice and cider were the subjects chiefly dealt with in the section devoted to cider. A collection of different types of cider yeasts showed the variation in the character of the organisms responsible for the conversion of apple juice to cider, while the relation of disorders of that beverage, such as acetification, oiliness, ropiness and cider sickness to the activity of special bacteria was demonstrated in each case.

The Experimental Station on Fruit and Vegetable Preserving, Campden, Gloucestershire, showed bottled fruits of all kinds, attractive packs of vegetables, boxes of home dried fruits, an assortment of jams, jellies, pickles and chutneys.

XI.—THE EXHIBITION OF CIDER AT PLYMOUTH.

By E. W. Farwell.

The entries at the Plymouth Exhibition in 1922 numbered 28, as compared with 35 at Bristol in 1921.

The classes, as usual, were open to growers or makers, and were as follows—

Class 221.—Cask of not less than 9 and not more than 30 gallons of cider made in 1921, of a Specific gravity not exceeding 1.015 at 60° Fahr.

CLASS 222.—12 Quart bottles of cider made in 1921, of a specific gravity not exceeding 1.015 at 60° Fahr.

CLASS 223.—Cask of not less than 9 and not more than 30 gallons of cider made in 1921.

CLASS 224.—12 Quart bottles of cider made in 1921.

Class.	No.	Exhibitor.	Specific Gravity.	Alcohol by Volume.	Acid.	Solids.	Remarks.
221	1	H. J. Davis ..	1-0132	6-95	·60	5-10	1st Prize
	2	Ditto ..	1-0132	6-85	·64	5-40	2nd Prize
	3	V. J. Gazzard (Absent)	..	..	..	..	C.
222	4	J. M. Parry & Co. ..	1-0132	5-00	·82	4-71	3rd Prize
	5	Pullin Bros. ..	1-0142	5-70	·67	5-32	Reserved
	6	H. J. Davis ..	1-0122	6-95	·49	5-12	3rd Prize
	7	Ditto ..	1-0122	6-85	·57	5-13	
223	8	V. J. Gazzard (Absent)	..	..	..	..	1st Prize
	9	J. M. Parry & Co. ..	1-0092	5-22	·57	3-62	2nd Prize
	10	Pullin Bros. ..	1-0146	5-05	·55	5-36	3rd Prize
	11	H. J. Davis ..	1-0242	5-65	·54	7-88	2nd Prize
	12	Ditto ..	1-0268	5-40	·55	8-50	
224	13	V. J. Gazzard (Absent)	..	..	..	..	1st Prize
	14	J. M. Parry & Co. ..	1-0242	4-70	·70	7-49	Reserved
	15	Pullin Bros. ..	1-0342	4-15	·74	9-86	H.C.
	16	H. J. Davis ..	1-0242	5-80	·62	7-73	3rd Prize
	17	Ditto ..	1-0272	5-35	·62	8-55	
225	18	V. J. Gazzard (Absent)	..	..	..	..	3rd Prize
	19	J. M. Parry & Co. ..	1-0248	4-10	·77	7-39	1st Prize
	20	Ditto ..	1-0212	4-30	·66	6-53	V.H.C.
	21	Ditto ..	1-0162	5-00	·80	5-41	2nd Prize
	22	Pullin Bros. ..	1-0352	3-80	·7	10-08	Contained Salicylic Acid
	23	Yeomans Bros. ..	1-0462	1-95	·55	12-38	C.
225	24	H. J. Davis ..	1-0252	4-30	·58	7-86	2nd Prize
	25	V. J. Gazzard (Absent)	..	..	..	..	1st Prize
	26	J. M. Parry & Co. ..	1-0166	3-85	·66	5-08	3rd Prize
	27	Ditto ..	1-0182	3-70	·66	5-43	
	28	Yeomans Bros. ..	1-0284	2-00	·63	7-96	

CLASS 225.—12 Quart bottles of cider made in any year previous to 1921.

Samples from each exhibit were submitted to Mr. F. J. Lloyd, F.C.S., for analysis, and particulars of these analyses are set out in the accompanying table. One entry was found to contain Salicylic acid.

Mr. G. H. Hollingsworth, Agricultural Organiser, Shire Hall, Gloucester, was the judge appointed by the Society, and the following are his criticisms on the exhibits.

It is a matter for regret that the competition in the Cider Classes was poor, especially when it is remembered that 1921 was an excellent vintage year and that the Show was held in Devonshire. Considering the reputation of Devonshire Cider, it is difficult to understand why there was not a single exhibit of Devonshire Cider in the Show. Yet this fact has to be recorded, and it would appear as if some special effort should be made to increase the competition for the prizes offered by the Society, seeing that at Shows like the Bath and West the public have an opportunity of seeing what good cider is like and cider makers could have no better advertisement for the beverage it is desirable to popularise.

The best class, both as regards quality and the number of entries, was that for 12 bottles of cider made in 1921, without any restrictions. Here the competition was keen, and the cider mostly of good colour and flavour.

The quality of the bottled cider made previous to 1921 can only be described as moderate, and the samples were decidedly variable.

For the bottled cider made in 1921, of a specific gravity not exceeding 1.015 at 60° Fahr., there was a fair competition, and the quality on the whole was good, but in practically every sample the Tannin was very pronounced, this being a characteristic of a good deal of the cider made in 1921.

In the two classes for cask cider, one having a specific gravity not exceeding 1.015 at 60° Fahr., and the other without this condition, there were 5 entries in each class, and the cider was of a good level quality with Tannin, as in the bottle classes, quite pronounced.

Since the Judge's report was written, the Council of the Society have decided to increase the value of the first, second and third prizes offered at the Swansea Show in 1923, to Five pounds, Three pounds and Two pounds respectively. It is hoped that this increase may help to stimulate competition by bringing forward new exhibitors, who may have been deterred previously by the expense incurred being out of proportion to the value of an award even when a prize was obtained.

XII.—DAIRY HERDS COMPETITION.

By Jesse Crumpler.

CLASS I.—MILK RECORDED HERDS.

POINTS AWARDED.

<i>Competition.</i>	<i>Milk yield for ft recorded year.</i>	<i>General appearance of Herd.</i>	<i>Young Dairy Stc</i>	<i>Bulls.</i>	<i>General manage ment, Cows, and Dairies.</i>	<i>Total.</i>	<i>Award.</i>
	40	30	15	10	5	100	
Shinner, R. (18 cows), (50% heifers) ..	37	28	14	10	4.50	93.50	1st Prize
Hall, R. (12 cows) (16.66 heifers) ..	40	29	9	10	4.00	92.00	2nd Prize
Starkey, A. H., Capt. (48 cows)	22	25	13	9	4.00	73.00	
Hunt, W. (14 cows), (30% heifers)	33.50	26	12	8.50	4.50	84.50	3rd Prize

REMARKS.

In such a good dairy district and where the operations of the South Devon Milk Recording Society has been doing such useful work, I was very sorry not to get more entries, particularly as the South Devon Breed is one of the dairy breeds of this country. When I saw these herds it was just between the seasons, and they had not then shed their old winter coats, but had all come through the winter exceptionally well. Kept principally for the product for which Devon is noted they all show a very high percentage of Butter-fats. Some of the animals exhibited in the herds I expect to see figuring in the prize list as individual exhibits at Plymouth.

CLASS II.—CLEAN MILK PRODUCTION.

These herds I visited on April 29th and again on May 30th.

Neither of the competitors had premises suitable for clean milk production; the premises occupied by Mr. Shinner is certainly more adaptable for milk production than his competitor, one strong point against this farm was the accumulation of manure in the yards

adjoining the cow pens, and in some of the cow pens which appeared to be only cleaned out periodically.

The milk from this herd was not cooled on my last visit, but samples taken from the churns after the competitor had stirred the milk with his naked hand and arm (instead of by a plunger), the milk being sent direct to Paignton.

Mr. Hall's premises are of the crudest possible, and under the circumstances unless he had used every possible means of cleanliness his samples would, I am confident, have shown much higher in bacterial content. On my first visit I found his whole herd just recovering from a very bad form of poisoning, due to the feeding of a compound dairy cake, composed very largely of castor oil and bean husks, this, I consider, very materially affected the results from these cows.

In the management of this herd great care appears to be exercised to obtain the best results; no accumulation of manure, cow pens well cleansed and disinfected, and hydrated lime used liberally inside and outside the pens.

The milk was taken direct from each cow to the cooling room, weighed and at once put over the refrigerator, after being strained through a Nlax Strainer with cotton wool discs, the equipment being spotlessly clean—stools, pails, churns, etc. This competitor I consider, with suitable premises, would prove a credit to production on hygienic lines.

In neither case do I consider the first prize value should be awarded in this class, but second to Mr. Hall, with 933 points, and third to Mr. Shinner, with 918 points, particulars of which I attach herewith.

The special prize offered by G. Martyn, Esq., a silver cup, value £10, was awarded to Mr. R. J. Hall.

COMPETITION FOR MILK RECORDED HERDS AND TO ENCOURAGE CLEAN MILK PRODUCTION.

CLASS 2.		<i>Competitors.</i>	
<i>Maximum</i>		Robert Shinner	R. J. Hall
<i>Points.</i>			
100	Health of Cows	95	96
100	Equipment (so far as the Competitor is responsible for it)	90	95
400	Methods of Milking and handling the Milk ..	350	362
150	Bacterial content and keeping quality of Milk..	135	130
150	Presence or absence of <i>Bacillus Coli</i>	150	150
100	Chemical composition of Milk	95	100
	% Fat average	3.82	4.10
	% Total Solids average	13.65	13.52
	% Non Fatty Solids average	9.86	9.66
			5 tests

BACTERIOLOGICAL ANALYSES.*(Carried out by the Seale-Hayne Agricultural College).***Mr. Shinner, Buckfastleigh.**

<i>Date.</i>	<i>Age. Hrs.</i>	<i>Temp. when tested.</i>	<i>Agar Count.</i>		<i>Lactose fer- menting organisms</i>	
6/5/22	20	59°F.	500,000	+	1	c.c.
					1,000	"
12/5/22	10	54°F.	134,000	—	1	"
19/5/22	10	45°F.	8,400	+	1	"
25/5/22	29½	60°F. Nil in 1	1,000	+	1	"
			5,700	—	1	"
30/5/22	11	57°F.				"

Mr. Hall, Bere Alston.

6/5/22	20	59°F. Nil in 1	1,000 c.c.	+	1	c.c.
					1,000	"
11/5/22	29½	46°F.	193,000	—	1	"
19/5/22	28	54°F.	600,000	+	1	"
					10	"
25/5/22	29½	60°F.		+	1	"
					1,000	"
30/5/22	20	60°F.	300,000	+	1	"
					1,000	"

KEEPING QUALITIES—**Mr. Shinner, Buckfastleigh.**

<i>Date.</i>	<i>No. of days sweet at 58°F. after arrival at the laboratory.</i>					
9/5/22	½
12/5/22	2½
19/5/22	1
25/5/22	½
30/5/22	1

Mr. Hall, Bere Alston.

9/5/22	..	..	..	..	..	0
12/5/22	..	..	..	..	..	2½
19/5/22	..	..	..	..	..	½
25/5/22	..	..	..	..	..	½
30/5/22	..	..	..	..	..	½

XIII.—APPLE PACKING DEMONSTRATION AT THE BATH AND WEST SHOW.

By J. Stoddart, District Inspector.

In accordance with instructions I conducted an Apple Packing Demonstration at the Bath and West Show, at Plymouth, on the 1st, 2nd, 3rd, 5th and 6th inst.

The Society provided a space adjoining the Ministry's Pavilion, and, as reported, agreed to re-fund any debit in regard to apples used. I purchased six bushels of New Zealand Sturmer apples from Messrs. T. J. Poupart for £4 5s. 0d., on which I had to pay £1 2s. 5d. carriage to Plymouth. At the close of the Demonstration I sold the remaining apples for £3 18s. 3d., leaving a loss of £1 9s. 2d. only.

For the purpose of the Demonstration I used a folding 5 compartment table of my own design together with a new type of "sizeing" apparatus—I found this very successful in use.

The Demonstrations were announced to be given three times daily, but I found it necessary to give them more frequently than this as continual interest was shown by visitors to the Show.

With a Show of this kind, where the visitors consist mainly of the general public, I did not think it advisable to give a full lecture, as the majority of people did not appear to be concerned with the smaller details, so in view of this I selected those portions of the Demonstration which impressed the uninitiated, and dealt with those only, asking the growers who were present to remain and go into the details afterwards.

The items which interest the general public are the working of the sizeing apparatus, the closing of the box to show the bulge, and the opening again to show that the fruit is not damaged.

In every Demonstration I explained the urgent need for the adoption of up-to-date methods of marketing and the producing of higher grade fruit in order to cope with the avalanche of foreign and colonial fruits, which is robbing the old growers of his markets. This always aroused keen interest, a large number of growers were dealt with individually and in small groups and the whole of the questions in regard to the marketing of apples threshed out with them.

I met quite a lot of growers whom I know from other parts of the country, as did Mr. Gough, who assisted me, and I am sure that the Demonstration has served a very useful purpose, not only in regard to Apple Packing, but for general propaganda.

XIV.—ANNUAL REPORT UPON THE SOCIETY'S GENERAL OPERATIONS.

By F. H. Storr.

The Annual General Meeting of Members was held on Saturday, June 3rd, in the Council Pavilion in the Show Yard, Plymouth.

The Deputy President (Lord Clinton), occupied the Chair, and among other members present were Lord Bledisloe, K.B.E., and Sir J. Shelley, Bart., (Vice-Presidents), Viscount Folkestone, Sir F. H. Bathurst, Bart., D.S.O., Sir C. Miles, Bart., Col. R. A. Moore-Stevens, Col. E. Lewis, Major E. W. Fairwell, Capt. H. G. Hawker, Messrs. W. Ashcroft, E. G. Dulcken, O. J. Fewtrell, J. T. Gibson, G. Gifford, G. Lipscomb, A. T. Loram, C.M.F. Luttrell, G. Martyn, H. B. Napier, Rev. C. R. Patey, Professor J. Penberthy, H. I. Popham, W. J. H. Porter, J. F. Shelley, A. F. Somerville, G. S. S. Strode, T. E. Studdy, I. de C. Treffry, C. C. Tudway, A. R. White, O.B.E., etc.

The minutes of the last Annual General Meeting having been read and confirmed, the Deputy President moved, Col. R. A. Moore-Stevens seconded, and it was unanimously agreed that H. R. H. The Prince of Wales be elected President of the Society for the ensuing year, this constituting his second term of office.

On the motion of Sir J. Shelley, Bart., seconded by Mr. J. E. Daw, Mr. H. B. Napier was unanimously elected a Vice-President of the Society, and on the motion of Capt. H. G. Hawker, seconded by Mr. W. J. H. Porter, the gentleman named on page cx of the appendix to this volume were elected members of Council for the years 1922-24.

The accompanying report, which had been adopted at the Council Meeting held on the previous day, was then submitted to the meeting and on the motion of Lord Clinton, seconded by Lord Bledisloe, was approved and ordered to be printed in the Society's Journal.

"The Council, in presenting their annual report, has, first of all, to express their great regret that the President has been prevented from honouring the Plymouth meeting with his presence. He has, however, shown his appreciation of the Society's work by consenting to become a life governor of the Society, and, had he been able, he would certainly have shared in the pleasure felt by the Society in again visiting Plymouth after an interval of 20 years. The Council have to express their sincere thanks to the Town of Plymouth for their cordial welcome, and their indebtedness to the Local Committee for their efforts to promote the success of the

Show. The thanks of the Society are also due to all those who, like H.R.H. the President and many others, have contributed to the prize list, and have helped the stewards in other ways.

The Council have also particular pleasure in acknowledging the very friendly co-operation of the Devon County Agricultural Association, who have suspended their show for the year and have contributed £250 to the prize list. This has enabled classes to be added for breeds specially associated with the district, and members of this Society will heartily reciprocate the friendly attitude of the Association on this and many past occasions. Your Council have in response, conferred upon the members of the Devon County Association members' privileges with respect to entries and admissions.

In spite of the difficulties under which the farming industry and the manufacturers of implements are labouring at the present time, and although the expense of showing is still unduly heavy, the present exhibition is a large one in almost every department. Your Council have been at especial pains to encourage the educational features of the exhibition, and those competitions, such as the Smallholders and Allotments competition, which have been introduced since the war. The educational exhibits range from the work of elementary school children, organised by the Devon County and the Plymouth Education Committee, to that of the scientific colleges, such as Bristol University and Seale-Hayne, while the programme of lectures delivered in the Yard, though their number has been reduced to more manageable proportions, will continue a feature that was greatly appreciated last year. These addresses will again be printed and issued to members of the Society in pamphlet form.

A fresh start has been made in the work in which the Society has always been a pioneer, in bringing the results of scientific institutions to practical application. At the Council meeting held on July 27th. 1920, it was resolved to demonstrate, if possible, on a number of plots in different counties, that the improvement of poor pasture land was an economic possibility even under present conditions. Five such plots are now being treated, especial importance being attached to the eradication of bracken and thorn. The efficacy of applications of lime, basic slag and Nauru phosphate will be thoroughly tested, and all results carefully supervised by the Society's stewards. A preliminary report has been issued in the current number of the Journal, though it is expected that at least three years must elapse before conclusions of a reliable nature can be drawn from the facts and figures obtained. The Bristol University Research Institute is rendering great assistance in this work, having under-

taken the necessary chemical and botanical analyses free of charge. in addition to the advice of Captain T. Wallace and other members of the staff.

The most important question affecting National agriculture which has occupied the attention of the Council during the past year is that of allowing the free importation of cattle from abroad. In June of last year the Council strongly supported the formation of the Live Stock Defence Committee, and contributed £50 towards the necessary expenses of that body. It was hoped that the agitation for the repeal of the embargo had been defeated, but it now appears that further action is likely to be required, and two members of the Council have recently been appointed to represent the Society on a deputation to Mr. Austen Chamberlain, to impress on him the almost unanimous wish of agriculturists that the embargo should continue. Further developments in the situation will be carefully watched.

The Council also passed a resolution against the repeal or amendment of the Milk and Daries Act of 1915, it being clearly shown that the repeal of this act would probably lead to an increase of interference with milk producers, and to further discouragement of the production and sale of milk. The Council are glad to be able to report that the representations made by this and other Societies have induced the railway companies to restore the pre-war concessions granted to the exhibition of live stock at agricultural shows. A further resolution was passed which, while approving of the steps already taken by the Ministry to control the outbreak of foot and mouth disease, urged on it the necessity of a stricter examination of Irish cattle entering this country.

Your Council are glad to report that the membership of the Society still shows a steady increase, and has reached a level that has not been attained for nearly 30 years. The Finance Committee are able to declare a satisfactory position, while the substantial profit made at the Bristol meeting has made it possible to keep in hand the stock of timber necessary to erect the present Show buildings, which represents a large increase in the value of the Society's plant. There has, too, been a welcome change from depreciation to appreciation in the value of the Society's invested capital, an appreciation which amounted in January to over £1,200, and which has now been still further increased.

It is with great regret that members will have learnt of the death of Mr. D. T. Alexander, a vice-president of the Society and a member of Council since 1899. As a steward of horses he had rendered good service and was one of the most constant supporters of the Society

and a well-known member of many agricultural bodies. They will also regret to hear that Mr. C. L. F. Edwards feels compelled to resign his more active duties in the Show Yard, where he has for long been such an efficient and popular figure, and that Mr. T. Latham has felt obliged to relinquish his office as Steward of Shoeing, owing to advancing age and ill-health.

The Society has further to deplore the loss by death of many of its old and valued supporters, included among whom was the late Earl of Ducie, for many years a vice-president, and president of the Society in 1876.

During the year the Council have continued the grant of £100 to the Bristol University Agricultural Research Station, and have re-nominated Mr. H. B. Napier as their representative on its governing body. The Research Station has greatly increased the scope of its work so that it will no longer be possible to publish every detail of it in the Society's Journal as heretofore. A further reason for a change in the method of publication is the technical character of many of the details it is now necessary to record, which, though of great scientific interest, are not always capable of immediate practical application. It has therefore been arranged that, while a general survey of the work at Long Ashton will still form part of the report made to the Society, only those subjects which are of general interest and on which fairly definite conclusions have been arrived at, shall in future be published in the Journal. Reference must also be made to the valuable educational exhibit made by the Research Station at the Society's meetings, which alone more than justifies the continuation of the grant.

Mr. A. R. White has been re-nominated as the Society's representative on the Dauntsey School Foundation, Mr. W. Ashcroft on the governing body of the South-Eastern Agricultural College at Wye; and Mr. H. G. Alexander on the Sugar Beet Growers' Society. The Council recommend that Mr. H. B. Napier be elected a Vice-President of the Society, to which he has rendered such long and valuable service, and that the gentlemen named on the agenda paper be elected as members of Council for the years 1922-24.

It will be a source of satisfaction to many members that the Royal Agricultural College, Cirencester, the oldest Agricultural College in the Empire is to be re-opened next autumn.

Your Council desire to tender to the Right Hon. the Lord Clinton their thanks for his services as Deputy-President for the past year, during the greater part of which H.R.H. the President has been absent from England. The President of the Society in 1908-09, when the Society last visited Devon, his knowledge of the Society

and its procedure has proved of great value during his tenure of office.

It is with great pleasure that your Council report that H.R.H. the Prince of Wales has honoured the Society by consenting to be re-nominated as President for the ensuing year, and they unanimously recommend his election, which will be cordially received and much appreciated in the Principality of Wales and the County Borough of Swansea, where the 1923 meeting will be held."

Votes of thanks were then passed to the Mayor of Plymouth and the Local Committee for their successful efforts to promote the success of the Meeting; to those gentlemen who had kindly acted as judges in the several departments, and to Lord Clinton for the valuable services he had rendered to the Society as its Deputy-President.

XV.—THE NATIONAL FRUIT AND CIDER INSTITUTE.

By B. T. P. Barker, M.A., Director.

Although the year 1922 has not been characterised by any outstanding development in the shape of staff, buildings or land. it is likely that various decisions which have been arrived at during the year will materially influence the course of the future work of the Institute. As indicated in the last number of this Journal, further active extension of the work was impossible without increased financial aid. During the year the Ministry of Agriculture and Fisheries has secured additional funds for the development of agricultural research and has allocated a grant of £5000 towards the cost of buildings, equipment and development of land for experimental work, needed before extension can be undertaken. From the same source an increase in the annual grant has been provided, which permits of certain additions to the Staff, the initiation of a scheme of research on Willow growing and the utilisation of willows, and the beginning of a systematic survey of soils in respect of their suitability for fruit culture. These matters have been referred to in more detail below.

An important step has been taken by the institutions engaged in horticultural research which are aided by grants from the Ministry of Agriculture and Fisheries. Hitherto there has been no settled procedure with regard to the publication of results, some of which have been dealt with in the form of summarised progress reports of

the present character issued annually by the institutions and others in more detailed communications to various scientific and technical journals. The need of a special periodical to serve as a medium of publication of the work of these institutions has been apparent for some time and recently it has been possible to arrange with Mr. Edward A. Bunyard, F.L.S., for the Journal of Pomology, hitherto owned and edited by him, to fulfil this purpose. The institutions concerned have taken over all financial responsibility and the publication will in future appear under the name of the Journal of Pomology and Horticultural Science, Mr. Bunyard continuing to act as editor. This arrangement will to some extent affect the character of the Annual Reports on the work of the National Fruit and Cider Institute which appear in this Journal. The greatly increased annual output of work since the extension of the Station in 1912 calls for more space than can here be devoted to it, while much of it is unsuited for detailed presentation. Hence the reports have gradually assumed the character of summarised progress statements relating to the more suitable subjects for consideration with occasional articles on matters of more general interest in greater detail. The complete papers on many subjects have been necessarily published elsewhere. It is proposed to proceed in future along this line of natural development, and succeeding reports will therefore consist mainly of brief summaries of papers published in the Journal of Pomology and Horticultural Science and other technical journals and of reprints in complete or abridged form of any which by their nature are of general interest. Any readers who wish to see the fully recorded work can obtain further information relating to the Journal named from the writer.

Staff.—Mr. S. P. Wiltshire, having accepted an appointment on the staff of the Imperial Bureau of Mycology, vacated his post as Mycologist to the Station at the end of September. Mr. H. R. Briton-Jones, B.Sc., late Mycologist to the Egyptian Government, has been appointed as his successor. At the same time Miss V. G. Scott (Mrs. S. P. Wiltshire) terminated her engagement as Research Assistant at the Campden Experimental Factory and the vacancy on the staff thus created is remaining unfilled pending a decision by the Ministry of Agriculture and Fisheries as to the future grant for Campden.

Arrangements have been made for the transfer of Mr. A. H. Lees from the Advisory to the Research Staff and his place on the former is being taken by Mr. E. Ballard, M.A., late Entomologist to the Madras Government.

Mr. H. W. Miles, B.Sc., concluded his investigations on the life

history and control of the Apple Blossom Weevil at the completion of his term as Research Student last July.

A grant for a special investigation on the species of mosses, lichens and algae on the bark of fruit trees; their removal with winter washes and the effect of the latter upon hibernating insects and fungus spores, has been awarded to Mr. S. S. Light, B.Sc., by the Ministry of Agriculture and Fisheries and he will be stationed at Long Ashton during the period covered by it.

Miss Gilchrist, B.Sc., Lecturer in the Botanical Department of the University of Bristol, has continued her investigations on the Myxosporium disease of Apple trees in association with Mr. Wiltshire.

Miss Riddler, attached to the same Department, is collaborating with Mr. Lees in an examination of the histological anatomy of healthy and reverted Black Currant plants.

At the invitation of the Ministry of Agriculture and Fisheries the Station has agreed to undertake a new branch of work, viz., investigations on Willow growing and the utilization of Willows. Mr. H.P. Hutchinson, B.Sc., late Advisor in plant Pathology attached to the Midland Agricultural College, Kingston, Derby, has been appointed to take charge of this work.

Land and Plantations.—An arable field about 11 acres in extent has been in preparation for the past two years for fruit and new experimental plots will be established there during the present and the following planting season. In addition a further area of about 20 acres of pasture has been taken over from the present tenant of Fenswood Farm and is being drained and ploughed preparatory to fruit culture.

A small grass orchard containing mainly worn-out cider trees has been grubbed and the planting of experimental plots of strawberries, which when complete will occupy about 2 acres, has already been started.

The raising of trees and plants to stock the land referred to is proceeding actively in the nurseries.

In the lowest-lying portion of the farm a field of approximately 4 acres has been appropriated for the establishment of trial plots for varieties of Willows as a part of the Willow Research Scheme.

Buildings.—No new buildings have been erected during the year, but plans have been drafted for various buildings which it is hoped to proceed with during the coming spring. A further reference to these is made in the following section.

General.—A further grant amounting to £5,000 has been promised by the Treasury on the recommendation of the Development Commission and the Ministry of Agriculture, on condition that

the Station provides in addition a sum of £1,750, to cover the cost of the development scheme now under consideration, which it is anticipated will cost approximately £6750. Under this scheme the extent of the fruit plantations is to be increased above the 1921 area by 30 acres, a road to serve the land recently developed beyond the railway constructed, farm buildings also required in that connection erected, greenhouses for physiological investigations and other experimental work built, much-needed additions and alterations to the cider buildings and equipment provided, and alterations in the laboratory building to furnish accommodation for recent additions to the Research and Advisory Staffs carried out.

The Ministry has recently sanctioned a small special grant to cover the cost of a survey of soils in the fruit-growing districts of East Anglia and the West of England and this work is being carried on in collaboration by members of the Staffs of the Cambridge University School of Agriculture and this Station.

The Annual Report for 1920 foreshadowed the arrangement of a scheme for closer working co-operation between the East Malling Fruit Research Station and this Station. It is satisfactory to record that a scheme drafted with that object by the Directors of the two Stations has now been approved by the respective Governing Bodies of the Stations and the Ministry.

The year has been marked by a notable increase in the number of visitors to the Station and of enquiries for advice. The holding of the Annual Meetings of the Horticultural Educational Association at the Station resulted in a closer touch being established with those who are engaged in this country in the work of horticultural education, while visits from parties of members of several of the Fruit Growers' and Market Gardeners' Associations in the West of England have strengthened the link with those engaged in commercial horticulture.

It is a pleasant duty to record again the loyal support of the administrative and assistant staffs. Although their work does not come prominently to the notice of those outside the Station, it influences very materially the amount of research which can be undertaken, and its efficient prosecution. To these in no small degree the year's achievement has been due.

The remainder of this Report is concerned with details of the work of the Institute under the Advisory and Research Schemes respectively. At the head of each section appears the name of the worker responsible for the contribution.

ADVISORY WORK.

The number of enquiries received by post during the year ending September 30th. 1922, was 478, thus showing an increase of 107 over last year. The figures for the counties as well as totals and the corresponding figures for the previous four years are set out as below :—

				Year ending Sept. 30th.				
				1918	1919	1920	1921	1922
Gloucester (including Bristol)	..	..	..	21	29	53	73	78
Hereford	..	..	..	2	6	10	22	21
Somerset	..	..	..	46	75	79	96	114
Wiltshire	..	..	..	0	6	3	10	18
Worcester	..	..	..	11	11	29	45	46
Other areas	..	..	..	93	75	117	123	201
				173	202	291	371	478

The figures for "other areas" include Devon and Monmouth, which counties contribute an annual grant to the Institute. Both entomological and mycological questions have been fewer than last year, but their number is more than made up by the increase in chemical and cider questions, the latter being especially numerous.

In addition to the advisory work indicated by the fore-going enquiries by correspondence, a very considerable amount, of which no statistics can be given, has been dealt with verbally. Matters raised by visitors to the Station or by growers visited during the course of tours in the Province come under this head.

NATURE OF INQUIRIES.

Fruit Products.—The advisory work in connection with the cider and perry and other fruit-products shows considerable increase. 177 written enquiries were dealt with, some of them entailing analyses of apples, determination of alcohol, sugar, etc. The sources of the enquiries are set out below.

Gloucester	..	..	..	..	..	..	15
Hereford	..	..	..	..	..	..	9
Somerset	..	..	..	..	..	..	33
Wiltshire	..	..	..	..	..	..	1
Worcester	..	..	..	..	..	..	13
Other Areas	..	..	..	..	..	..	106

Besides the enquiries received by post many people visited the Research Station to see the experimental cider factory and receive information.

Some enquiries were received concerning the use of market apples for cider, a subject which is receiving a good deal of attention by fruit growers.

Several cider factories and orchards were visited and a special examination of and fermentation experiments with six different fruit juices from the Agricultural College in Poona (India) were carried out.

As an example of the nature of the enquiries, the following analysis of the more general points dealt with may be of interest :—

Cidermaking in general (including Perrymaking)	5
Ropiness of Cider	3
Racking and Filtration	6
The Use of Preservatives	3
Bottling	5
Analysis of Cider and Perry	11
Fermentation	2
Machinery	8

The rest of the enquiries were mostly concerned with special problems of cider-making.

It is noteworthy that fourteen enquiries came from countries outside Great Britain and Ireland, viz., France, Russia, New Zealand, India, South Africa and the U.S.A.

Mycological.—During the year, the number of enquiries received was somewhat fewer than in the previous year and were distributed among the counties as follows :—

(Gloucester	17
Hereford	3
Somerset	19
Wiltshire	1
Worcester	8
Other Areas	22
	<hr/>
	70

As usual the enquiries covered a very large field, many of them being concerned with very obscure diseases.

There has been no very striking characteristic of the past season from the mycological point of view, but a few diseases have been more prominent than usual. Firstly, a number of cases were met with in which the buds of the pear and also of the apple were affected. Sometimes the buds were killed off before the flower buds opened and at others when they were full open. A preliminary study of these diseased buds was made, with the intention of following the matter further. In a number of instances *Nectria galligena*, the canker fungus, was isolated from the buds both on the pear and on the apple. This occurrence was very surprising and further attention should be given to this type of infection. In other cases the blossom bacillus was present, causing definite scars down the side of the stem which did not progress more than a few inches. From the fact that

unopened flower buds were sometimes killed off by this organism it appeared that the infection probably developed from the isolated colonies of the bacillus which are known to occur in the spur shoots. The species of *Fusarium* causing bud rot was present in some cases but not very frequently. On one special tree of the Lord Suffield variety at Long Ashton, many infections of this organism have been found in which the bud was not only killed but the fungus had grown back into the main stem, producing a scar about 1 or 2 inches long. On the dead shoot left, pink spore pustules of the fungus were produced during the summer (July). In the Ministry of Agriculture's Leaflet on canker, the pustules of the canker fungus were referred to as pink or white and it is probable that the spore pustules belonging to the *Fusarium* Bud Rot fungus were referred to. In some cases the cause of the dying of the buds remained obscure, especially was this the case in some of the pears. A careful examination of the developing buds, however, showed that in a number of cases, the cortical tissue was killed in a zone extending completely round the base of the flower shoot, and about $\frac{1}{8}$ of an inch wide, but never very deep into the tissue. The result was, however, the wilting and death of the whole flower shoot very quickly. No organism was isolated from these specimens and the cause remains completely unknown. As a result of this preliminary investigation it is evident that diseases of fruit buds would amply repay further investigation.

One peculiar disease of raspberry canes was recorded from Worcestershire, where it was doing severe damage in a garden. The canes became quite black owing to the growth of a dark coloured fungus mycelium in the bark. The tissues of the main stem appeared to be healthy in most cases, and whether the fungus present was causing the disease is unknown. No fructifications of the fungus were discovered.

An unusual condition in the strawberry crop was the prevalence of mildew, which attacked particularly young vigorous growth.

Sclerotinia apivorum was recorded on land which had not grown onions for 10 years. Information was sought but was not obtained as to the cause of the discontinuation of the culture of onions previously.

Sclerotinia sclerotiorum was found doing very severe damage on cucumber and *Sclerotinia trifoliorum* on beans.

Armillaria mellea continues to be the cause of a few enquiries each year. This time it is reported on privet—destroying a carefully kept hedge—on black currants and red currants.

A number of enquiries were also received regarding the non-

parasitic blossom-end rot of tomatoes. One case occurred in which salt water had been used in watering the plants on account of the drought and where the disease occurred very badly. This supported the view that bad water supply is responsible for this disease, although the fact that the soil was acid at the same time did not allow of any exact conclusion being drawn.

Sleepy disease of tomatoes was traced to *Verticillium albo atrum*.

The Chocolate Leaf Spot was reported as doing damage in Wiltshire, but there was not general epidemic as in 1920. A point which was noticeable with regard to the potato leaf curl was the bright colouring of the foliage, identical with the colouring which occurs on the Continent, but which is not often seen in the West of England. The drought of the early summer may have been responsible for this effect.

An obscure disease of vegetable marrows was noted towards the end of July. The leaves became variegated with yellowish blotches and then remained small. Single plants were infected, whilst the surrounding ones were healthy. The fruits were not developed properly having a very uneven surface. No fungus was found to be present and although the reason was sought in the extremely cold nights experienced in the early part of July, yet the fact that some plants were affected and not others led one to regard this view with suspicion. The appearance of the plant suggested a mosaic disease, but no evidence of this was obtained.

Pomological.—During the year 78 replies were given by letter, while many growers visited the Station for information on definite points.

Sources of written enquiries :—

Gloucester (including Bristol)	..	..	..	17
Hereford	..	..	..	2
Somerset	..	..	..	16
Wiltshire	..	..	..	3
Worcester	..	..	..	4
Other Areas	..	..	..	36

78

A large percentage of the enquiries referred to strawberry-growing, many to varieties of fruits for identification and the remainder to general fruit culture.

The prominence of the strawberry-growing enquiries is due probably to the comparatively large programme of experiments with this crop at present being carried out at Long Ashton. The

Cheddar Fruit Growers' Association may be mentioned as being particularly interested in this work as well as many prominent growers from other strawberry districts not in the advisory area.

The majority of enquiries on strawberry culture were concerned firstly with remedies for the several forms of stunted plants which are causing the growers serious losses in many parts of the country, and secondly with the commercial value of the newer varieties. On the latter point the Station has started a series of variety trials in conjunction with the Cheddar Fruit Growers' Association.

Shows.—An exhibit from the Station was sent to the following Shows : —

- (1) The Imperial Fruit Show at the Crystal Palace.
- (2) The Bath and West at Plymouth.

The following sections dealing with the Advisory work in Agricultural Chemistry and Economic Entomology have been contributed respectively by Mr. T. Wallace and Mr. A. H. Lees, the advisors in these subjects.

AGRICULTURAL CHEMISTRY.

During the year 76 requests for advice have been received. The sources and nature of these enquiries, together with their special points of interest, are given below —

SOURCES OF ENQUIRIES.

Gloucester (including Bristol)	..	..	..	21
Hereford	..	..	..	4
Somerset	..	..	..	22
Wiltshire	..	..	..	10
Worcester	..	..	..	11
Other Areas	..	..	..	8
				<hr/> 76

NATURE OF ENQUIRIES.

(1) *Soil Problems.*

(*Soil Manurial Problems*).

Pastures and Meadows	..	..	..	12
Arable Soils	..	..	..	19
Fruit Soils	..	..	..	7
Garden Soils	..	..	..	4
Hop Garden Soils	..	..	..	1
				<hr/>
TOTAL	..	..	..	43

(b) *Miscellaneous Soil Problems.*

Soil conditions in cases of " Leaf Scorch "	..	12
Suitability of Soils for Apple Growing	..	5
Ditto Strawberry growing	..	1
Examinations of Soils for Lead	..	2
Soil conditions in cases of failures of tomato crops	..	2
Soil conditions in cases of failures of crops on arable land	..	17
Soil conditions where soil appears to be unsuitable for fruit growing	..	2
TOTAL	..	41

(2) *Miscellaneous Enquiries.*

Agricultural value of samples of lime chalk and limestone	..	5
Agricultural value of residues from a Calcium Carbide plant	..	1
Potash contents of samples of wood ashes	..	3
Purchase of Manures	..	2
Fradication of Horsetail from Pastures	..	2
TOTAL	..	13

OBSERVATIONS ON ENQUIRIES.

(1) *Soil Enquiries.*

In dealing with the enquiries submitted seventeen farms have been visited and seventy samples of soil have been examined. The majority of the enquiries may be grouped under three headings :—

- (1) Enquiries relating to the best methods of improving grass-land.
- (2) Enquiries as to the causes of crop failures on arable land.
- (3) Enquiries relating to fruit-growing.

In connection with grassland improvement problems efforts are being made to collect soil data in cases where farmers are endeavouring to effect improvement by applications of basic slag. It is felt that in such cases data relating to the lime requirements of the soils are of importance in this Province as the lime requirements of many of the poor pastures situated on the various Sandstone Formations are very high : several such cases are now under observation.

As in previous years a large percentage of the cases of crop failures examined appear to be due to acid conditions in the soils. The majority of these acid soils were found to be situated on either the Upper Greensand Formation or the Old Red Sandstone Formation.

The most pressing problem of the fruit-growing areas which appears to be intimately connected with soil conditions is the

problem of "Leaf Scorch." Twelve cases of this disease have been submitted by growers and many more cases have been observed during a special tour made in August of certain fruit-growing areas in Herefordshire and Worcestershire. This problem is receiving special attention at this Station at present and during the course of last season many samples of soils from "Leaf Scorch" plantations have been examined and several manurial trials have been arranged in the two above mentioned counties.

(2) *Miscellaneous Enquiries.*

As in previous years most of these have related to the values of samples of lime wood ashes. etc.

From enquiries received on the questions of lime and liming and from private conversations with farmers on this subject it is clear that great benefit would be derived by Agriculturists from a reduction in the current prices of lime and limestone.

SPECIAL INVESTIGATIONS IN PROGRESS.

(1) Field Experiments on "The Eradication of Bracken from poor Moorland Pastures."

This experiment has been continued over the past season. The results obtained will appear in the Journal of The Bath and West and Southern Counties Agricultural Society.

(2) Experiments to ascertain the cause of dying off of strawberry plants in the Tamar Valley area.

These experiments have been continued.

(3) Experiments on Chlorosis with reference to a case at Winscombe, Somerset.

The experiments on this subject have been concluded during the past season. The results will appear in the Annual Report of the Research Station for 1922.

EXPERIMENTAL WORK UNDER CONSIDERATION FOR SEASON 1923.

(1) Field Experiments on "The Effect of Dressings of Sulphate of Potash on Leaf Scorch."

Arrangements are being made to carry out experiments at several centres in Worcestershire in co-operation with the Agricultural Organiser and at three centres in Herefordshire in co-operation with the growers concerned.

(2) Field Experiments on "The Effect of Dressings of Phosphatic Manures in Preventing Early Defoliation of Fruit Trees."

It is proposed to carry out this experiment at one centre in Worcestershire which appears to be suitable for this purpose. The experiment is being carried out primarily with the object of testing under field conditions results which have been obtained in pot experiments at the Research Station.

(3) Manurial Experiments on Apple Trees—variety, Cox's Orange Pippin where trees do not fruit satisfactorily.

The experiments are to be carried out at one centre in Worcestershire.

VISITS.

Worcestershire and Herefordshire.—During the latter part of August fruit plantations in several of the fruit-growing districts in Worcestershire and Herefordshire were visited. The primary object of the tour was to study the soil conditions in various plantations in which Leaf Scorch was present.

As a result of the visit the soil conditions of twelve of the Leaf Scorch areas are being studied and experiments are being laid down at several centres.

It may be stated that on this visit Leaf Scorch was observed to be present on soils of widely differing textures.

Wiltshire. During August several farms in Wiltshire were visited with the County Agricultural Officer to examine several cases of crop failures. Most of the cases related to soils situated on the Upper Greensand Formation and in all of these cases the cause of the failure appeared to be due to soil acidity.

Two other cases of interest were examined, one being a case of the failure of turnips on newly ploughed out Downland and the other a case of a poor pasture.

In the first case, on the small patches where plants had made any growth, the plants were showing symptoms of potash starvation. Since this field was visited the farmer has sown the failure patches with rye, but the plants after making a little growth have died down from their tips.

The Agricultural Officer is endeavouring to arrange for the land in question to be treated with a potash manure.

In the second case there was an area of about 90 acres of land situated on the Oxford Clay, classed as pasture, but over a large part of this area there was no grass to be seen, the surface being covered with dried out moss and stunted gorse bushes. The remainder of the area was covered with rough bent grass and there

was a thick "mat" present. The land under question had been previously drained, but the treatment had not produced any beneficial result.

The soil over the area, in spite of recent heavy rains, was exceedingly dry.

Samples of the surface soil were taken from patches where grass was present and where only moss was present. The soil from the former patches was found to have a lime requirement of 1.37% and that from the latter a lime requirement of 1.41%. The condition of the pasture is doubtlessly due to the exceedingly high acidity of the soil.

ECONOMIC ENTOMOLOGY.

The sources of enquiries received were as follows :—

Gloucester	6
Hereford	3
Somerset	18
Wiltshire	3
Worcester	8
Other Areas	25
	<hr/>
	63

The subjects dealt with were as follows :—

Insects	33
Sprays	6
Diseases	12
Fruit questions	7
Miscellaneous	5

Under the heading "Insects" all other economic groups, such as Myriapoda, Arachnida and Mollusca are included.

Otiorrhynchus picipes was found causing extensive damage to grafts in a nursery. In Herefordshire it was found causing unusual damage to black currants. The weevils as usual spent the day under clods of earth, but at night ascended the growing shoots and bit them nearly through. The shoots thus fell over and wilted. This took place in the early summer with the result that the shoot became much branched and useless.

A somewhat similar result may be produced by the attacks of a Tortrix caterpillar which eats out the terminal bud and causes extensive growth of the lateral buds. This is of comparatively common appearance in black currant plantations and is sometimes put down to reversion from which it is however quite distinct.

Galls of *Iasioptera rubi* were again sent in this year, on this occasion from Gloucestershire.

Enquiries on methods of control of White Fly in greenhouses were comparatively numerous. On the whole, however, the attacks seem to be lessening.

"Diseases" indicates maladies other than those caused by fungi and insect pests. Besides enquiries on Reversion Disease of Black Currants information has been sought on cases of strawberries dying for unaccountable reasons and on virus diseases of raspberries.

Amongst the former are cases of so-called "Red Plant" of strawberries, the position of which is still very obscure.

The number of enquiries shows a reduction of 34% on last year's figures.

VISITS.

Southampton Districts.—A visit was made to this district for the purpose of investigating the diseases of strawberries known as "Red Plant." The trouble appears to be abundant on the lighter soils which have been under intensive strawberry cultivation for some years. The symptoms of the disease are very obscure and confusing, especially as the trouble seems to be accentuated by soil peculiarities. The problem clearly calling for special research work in combination with field work in the affected areas, arrangements have now been made for detailed investigations.

Pershore and Hereford Districts.—Visits to plantations in these two districts revealed a very large amount of apple Leaf Scorch. This disease was far more prevalent than usual. The heavy crop of 1921 and the strong drought coupled with a second heavy crop in 1922 had evidently thrown a considerable strain on the trees. This strain was shown by scorching of the leaves and by a peculiar yellowing in the leaf margin that appears to be a forerunner of scorch. This stage was frequently shown by plums.

The heavy cropping might not have been sufficient by itself to produce scorch or yellowing, but coupled with the serious manurial deficiencies found by the Soil Chemist provides a sufficient explanation. Undoubtedly at the present moment, speaking broadly, the manurial question is of more importance to the fruit grower in these districts than pest control.

THE PHYSIOLOGY OF LEAF SCORCH.

(F. Summers.)

The problem of the cause of Leaf Scorch, or Tip Burn as the trouble is termed in the United States, has recently received considerable attention in an endeavour to discover an ameliorative treatment of a source of serious loss in the garden, orchard and plantation.

The various agents supposed to be responsible have been investigated and classified by Barker and his co-workers at the Long Ashton Research Station, who carried out most of their observations on fruit trees (i), and in the United States by Lutman, Neller and Morse who studied the trouble in the potato (ii, iii and iv).

The conditions under which Scorch might appear were in many cases found to be connected with conditions in the soil, such as inadequate aeration, inferior water-holding capacity, lack of available potash, or the presence in toxic proportions of chemical substances such as lithium carbonate and borax which do not, however, usually occur in such proportions.

All the above conditions were found to make for restricted root-development or action, although the root-development effect was not actually separated from that due to poverty in water.

The trouble was also found in association with special atmospheric conditions, such as the prevalence of drying winds during periods of intense solar illumination or conditions of excessive local heating of the leaves by the sun. Lutman (iii) also demonstrated the destructive action of intense sunlight upon the green colouring matter of the potato leaf.

Other factors of minor importance or less common occurrence were studied, such as interference with the water supply system by ringing and the action of the spray from sea-water (v).

Although no complete explanation of the cause of Leaf Scorch has up to the present been formulated, certain theories have been put forward. These are based upon some or all of the following underlying disorders :—

- (1) Excessive loss of water by transpiration from the leaves.
- (2) Heating or illumination of the green chloroplasts of the leaf to a point above the normal.
- (3) The accumulation of toxic substances in the leaf and an accompanying restriction of root-development.
- (4) A lack of balance, either in degree of development or in activity, between the root and shoot portions of the

(i)—BARKER, B. T. P., LEES, A. H., WALLACE, T., and WILTSHIRE, S. P. Ann. Rep. Agric. and Hort. Res. Sta., Long Ashton, Bristol. 1921.

(ii)—LUTMAN, B. F. Vermont Agric. Exp. Sta., Bulletin 214, 1919.

(iii)—LUTMAN, B. F. Phytopathology. Vol. 12, 5, 1922.

(iv)—NELLER, J. R. and MORSE, W. J. Soil Science. Vol. 12. 1921.

(v)—BOODLE, L. Journ. Min. of Agriculture. 1920.

plant, the root generally being incapable of supplying the water requirements of the leaves under conditions which favour a high rate of transpiration of water from the latter.

The first sign of Scorch is a yellowing of the leaf in patches, which, as a rule, appear earliest near the margins or tips. Under very severe conditions the patches may be distributed over the whole surface of the leaf. This yellowing is succeeded by a browning of the patches which generally assume a dark-brown, burnt appearance and this is the stage which is usually first noticed in the plantation. A certain amount of perplexity has however been caused, especially to the grower, when this browning has been observed to occur in cool, moist weather, *i.e.*, under conditions just the opposite of those which are regarded as productive of Scorch. The explanation is a simple one as will be seen in the sequel.

Seeing that the suspected casual factors are so many and varied and that a complete explanation of the causes of Scorch was not available it was considered worth while to examine the extent to which the physiological processes of the plant might be affected under "scorching" conditions.

TRANSPIRATION UNDER SCORCHING CONDITIONS.

The first process to be examined was that of transpiration, the normal process by which the leaves give off the excess of water above the immediate requirements of the plant.

It must not be supposed that it is possible always, in the complete living plant, to isolate for detached study a function such as transpiration. Where a physiological process can be studied separately it has been shown, *e.g.*, by Matthaei (vi) for the carbon-assimilation of the leaf, that when a factor, *e.g.*, temperature, is increased the rate may be increased only up to a certain point for the process is limited by the slowest factor, *e.g.*, the supply of carbon-dioxide.

Further, Matthaei also showed for the assimilation process that the rate at a high temperature is maintained at its highest level for a short time only and then falls off rapidly.

In the living plant under natural conditions all the various physiological activities are mutually interdependent, and the attempt should be to discover the individual process which is limiting the activity of the plant as a whole rather than an attempt to evaluate

(vi)—Matthaei, G. L. C. *Roy. Soc. Phil. Trans.*, B.197, 1904.

the factor which is limiting one process. For example, the atmosphere may be saturated with moisture to such an extent as to cause the stomata of the leaf to close during a period when the illumination is appropriate for increased assimilation and, as transpiration is affected by humidity to a greater extent than by light, the leaves may be left to do the best they can for themselves so far as the taking in of carbon-dioxide is concerned.

As ordinarily understood the transpiration of water vapour from the leaf is regulated by the guard cells of the stomata. There is, in addition, to be considered the loss of water by ordinary evaporation from the cuticle and pores of the leaf. Under ordinary conditions this is small but, when intense solar illumination is combined with extreme dryness of the atmosphere, it may become very considerable.

It is also necessary to consider, not only the loss of water from the leaf, but the process by which this is replenished by the ascending water current. This, in turn, is dependent upon the process of water-absorption in the root-system.

Normally these three part-processes are correlated, the result being a steady condition of things which may however be rudely disturbed if one of the part-processes is drastically modified. For example, if a young apple shoot is girdled with a wide ring and the bare surface exposed to drying conditions, the upward flow of water may be interfered with to such an extent that the leaves above the ring will be insufficiently supplied. Thereupon either wilting or scorch of these will follow according to the severity of the external conditions.

Another consideration to be taken account of is that the term excessive transpiration is often loosely employed to describe what is taking place in a set of conditions which have already brought the process to a halt.

The work performed during the transpiration of water vapour is due to the direct conversion of heat energy absorbed by the leaf so that a cooling effect on the latter is present as long as the process is proceeding normally. This can only be the case if the temperature of the leaf is at least slightly higher than that of the surrounding atmosphere whatever be the humidity of the latter. Should the atmosphere be hot and dry and above the temperature of the leaf then the stomata cease to regulate the loss of water which becomes vapourised by ordinary evaporation owing to the excess of heat energy absorbed. Complications no doubt arise as the concentration of the sap is gradually increased, but the end result is a drying out of the leaf. During the earliest stages of this the shrinkage of

the epidermis tends to keep the stomata open and encourage the loss of water from their cavities.

It is evident, therefore, that in spite of any increase in the activity of the root or of the water-conducting system, the system as a whole will experience a breakdown when the evaporation from the leaf becomes excessive. Experiments showed this to be the case under scorching conditions of the atmosphere.

Lutman found that specially large water pores were present near the margins and tips of potato leaves and that scorch made its first appearance near to these (iii).

In the foregoing no account has been taken of the effect due to intense illumination. Ultimately this has a destructive action upon the chlorophyll of the leaf, especially when this is thinly distributed, but the response of transpiration to light is but small compared with its response to a low degree of humidity of the atmosphere. Within limits the internal temperature of the leaf increases with the intensity of illumination, as Blackman and Matthaei have shown (vii), and the resulting increase of energy is doubtless largely converted into work in the transpiration process.

Any factor which tends to increase the rate of evaporation from the leaf assists in producing scorching conditions. A factor of this kind is wind or air movement. In still air "shells" of water vapour are formed over the surface of the leaf and these tend to keep down the rate of evaporation from it. The effect of wind movement has been closely studied but it is possible to say nothing more definite than that, when moving parallel to the surface of the leaf, the wind removes these "shells" of water vapour and increases the rate of evaporation. Under natural conditions, however, the wind is changing constantly both in direction and intensity with respect to any given leaf.

As bearing on the question of the earliest appearance of scorch at the margins of the leaves it is of interest to note that, when a leaf is placed at right angles to the direction of the wind, the stream-lines and eddies are so produced as to remove the water vapour most rapidly from the marginal area. Over the middle portions of the leaf area are produced a region of positive pressure on the windward side and of negative pressure on the lee side. On the windward side, therefore, there is a tendency for the evaporation from the middle region to be depressed and to be increased from the corresponding area on the leeward side. At the margins, however, the rate is greatly increased.

(vii)—BLACKMAN, F. F. and MATTHAEI, G. L. C. Roy. Soc. Proc., B. 76, 1905.

INTERFERENCE WITH THE WATER SUPPLY TO THE LEAF.

Barker and his colleagues repeated with apple leaves Haberlandt's experiment with those of the sycamore and other trees (viii). In this one or more veins were severed, the other tissues of the leaves being uninjured. Like Haberlandt, they found that leaves treated in this manner might continue to function normally for weeks with no sign either of wilt or scorch, although they point out that the atmospheric conditions during the experiment did not favour rapid transpiration. Lutman also repeated this experiment with leaflets of the potato and found that nothing happened in four days, although "the sunshine had been brilliant and the temperature high" (8).

Under ordinary conditions, therefore, it appears as though the translocation of water from cell to cell in the leaf were sufficiently rapid to make good the loss due to transpiration even when the more rapidly conducting path of supply through the veins is interrupted.

Interference with the water supply is produced when the shoot is ringed. During the past summer experiments were carried out on apple shoots which, after being ringed, were placed in position in a specially constructed potometer by means of which the quantity of water taken up by the shoot in a given time could be accurately measured. The rate of evaporation from the surface of the ring could be increased by regulating a blast of hot air at right angles to it. It was possible to increase the rate of loss of water from the ring to such an extent as almost entirely to cut off the supply to the portion of the shoot above it. When the experiment was carried out in a cool room with a north aspect wilting of the leaves invariably followed when this stage was reached.

Similar experiments were carried out in a greenhouse in which the shade temperature was often 80°F. and the humidity generally below 50 p.c. of saturation. In unringed shoots the upper leaves began to show patches of yellow on the third day, while the rate of absorption of water and of transpiration by the shoot gradually diminished. The leaves continued to dry out until only small, narrow, turgid, green areas near the bases of the main veins remained to maintain a feeble rate of transpiration. If these areas were vaselined the shoot ceased to absorb water to any noticeable extent. In the case of ringed shoots the leaves above the ring were scorched badly on the second day. There was no intermediate wilting stage and the leaves below the ring continued to transpire for at least two days longer before showing signs of scorch.

(viii)—HABERLANDT, G. *Physiologische Pflanzenanatomie*. 4th Ed. Leipzig.

More striking and rapid results were obtained when an unringed shoot was supplied with a 5 per cent. or 10 per cent. solution of cane sugar in place of water under the above conditions. The rate of water uptake declined rapidly to a very low value while the leaves were scorched very badly on the second day. Actual browning of the patches did not occur, however, before the night of the third day on which the humidity had been greater and the illumination much less than on the preceding two days.

Controls set up in water by the side of the potometer showed signs of wilting on the second day but no scorch appeared; other shoots set up in a cool north room showed no sign either of wilting or scorch. A control shoot set up by the potometer but supplied with no water behaved differently for its leaves dried out quickly without passing through an intermediate stage of wilt. On the fourth day the light green colour of the dessicated leaves was replaced by the typical browning of scorch.

Estimations of the quantity of sugar solution taken up by one of the experimental shoots showed this to be about 40 per cent. of the wet weight. This was approximately the same percentage of the wet weight that could be dried out of a similar shoot by leaving this exposed to bright sunlight for several hours in the greenhouse. The probability is, therefore, that the solution was able to penetrate the shoots only to the extent of replacing the water already present in the conducting system after this had been lost during the transpiration process. At this point the process broke down suddenly, owing, no doubt, to the inability of the solution to enter the cells of the leaf rapidly enough to maintain it. Under the conditions prevailing in the greenhouse these cells thereupon dried out rapidly.

THE RELATION BETWEEN SCORCH AND WILT.

It has been shown above that wilting is not necessarily an intermediate stage of scorch. There are obvious differences between a wilted leaf and one in a state of incipient scorch. The wilted leaf is flaccid owing to loss of turgidity and its petiole is curved, drooping and flaccid from the same cause. Such a leaf may recover its turgidity under conditions which make for reduced transpiration, while under conditions of extreme heat, dryness and illumination it will gradually dry out without ever recovering.

In the case of the scorched leaf the evaporation pull on the water of the leaf has not only been severe but also sudden. Then the lamina of the leaf does not become flaccid but more or less completely dessicated in a very short time. It is then light enough

to be carried at its original angle to the shoot by the totally dessicated and shrunken petiole. The rigidity of the latter is sufficient to prevent any preliminary stage of droop.

Knight has shown that at the beginning of wilting there is a preliminary rise in the rate of transpiration accompanied by opening of the stomata (ix).

This temporary increase did not occur in the potometer experiments, and, in all probability, represents a phase which is omitted by the scorched leaf. A discontinuity takes place abruptly in scorching conditions owing to the water of the leaf being withdrawn so rapidly that the replacement water is unable to maintain the connection so as to make good the loss. The leaf and petiole thereupon dry out quickly, the rigidity of the dessicated skeletal portions being sufficient to maintain the original angle of inclination.

Lutman appears to be of opinion that a reversible wilt, accompanied by partial plasmolysis and yellowing of the colour bodies, can pass into an irreversible fatal condition if the exposure to hot sunlight is prolonged. If the exposure is curtailed he considers that the plasmolysed cells may recover their turgidity but not their greenness.

In a few cases yellowed patches of apple leaves have been observed to retain their turgidity for many days when transferred to a cool room, but the cells of these certainly were not plasmolysed when so transferred. The yellowing is best regarded as a stage in the process of scorching, for some of it is merely optical and due to the drying out of the leaf tissue.

THE RELATION OF THE POTASH OF THE SOIL TO LEAF SCORCH.

Apart from the effect of soil texture upon the development of the root, work on leaf-scorch soils has shown very clearly the existence of a correlation between a low content of available potash and the production of scorched foliage. Deficiency of phosphoric acid appears also to play a definite, if subsidiary, rôle.

The literature of plant physiology contains numerous works upon the relation of potash to growth and development. In one of the latest of these Smith and Butler (x) have shown that in wheat, barley and buckwheat one effect of a deficiency of potash may be the withering or browning of the leaf tip. But very little work has been done on the question of the modification of individual

(ix)—KNIGHT, R. C. *Annals of Botany*, XXXV., 1921.

(x)—SMITH, T. O. and BUTLER, O. *Annals of Botany*, XXXV., 1921.

processes when potassium is absent. Briggs has lately published the results of an investigation of the effect of potassium, phosphorus or calcium starvation upon the carbon-assimilation process. He found that assimilation was below normal when the supply of either of these essential elements was deficient (xi).

Up to the present attention has been chiefly directed to the general response, in pot experiments, to potassium starvation. The consequence is that there appears to exist no relation whatever between the two sets of conditions, of soil and atmosphere respectively, which have been proved to produce scorched foliage. The possibility of one or more plant processes being below normal in conditions of potassium starvation opens up a new line of enquiry which should soon lead to the connection between the two sets of conditions being established.

THE PIGMENTS AND ENZYMES OF THE LEAF.

The yellowing or first appearance of scorch is due partly to the drying out of the leaf tissue and partly to the destruction of the green and yellow pigments by certain enzymes, or ferments, of the leaf which have the power to oxidise them. The first stage to be noticed in the plantation is, as has already been mentioned, the subsequent browning of the scorched patches.

The following is a brief summary, in general terms, of the chemical changes in the leaf which result in the production of these colours. There are present in the leaf colour-producing bodies or chromogens, which increase greatly in quantity in bright sunlight, in solutions of cane sugar or, when the rate of respiration of the leaf tissue is increased as it is on drying out. These chromogens are acted upon by certain of the oxidising enzymes mentioned above to form pigments such as those responsible for the browning. The enzymes are unable to act, however, if the leaf tissue is quite dried out. Should it absorb moisture subsequently the action may recommence and the pigments be formed.

When apple leaves were dried out at a moderate temperature in the oven they did not become brown but retained a greenish colour for weeks. If, however, these dried leaves were soaked in water for one hour and again laid out to dry browning quickly followed. This was always more intense round the edges of cuts or perforations in the leaves where the water had penetrated to a greater extent. Soaking is not essential, however, for if the dried leaves were laid out in a moist atmosphere the browning took place.

If the dried leaves were dipped into boiling water or were suspended in steam for a few minutes before being laid out to dry again no browning occurred owing to the destruction of the enzymes.

Under natural conditions leaves which have become dried out during a sunny day may absorb sufficient moisture to permit enzyme action to proceed. If rain or moist atmospheric conditions follow on the drying out, browning takes place more rapidly and as, in all probability, the previous stage has passed unnoticed this easily accounts for reports of the occurrence of scorch when the atmospheric conditions are not those which are generally held to be responsible for the trouble.

SUMMARY AND CONCLUSIONS.

(1).—The characteristic “browning” of leaves suffering from scorch is an after effect which may make its appearance after the conditions responsible for the scorching have passed. The real primary effect is characterised by more or less complete destruction of the green pigments of the leaf combined with a drying out of the cells.

(2).—The “browning” is, in all probability, due to the action of oxidising enzymes upon the chromogens or colour-producing bodies produced during the drying out of the leaves. This action does not take place in the dried leaf but commences as soon as this re-absorbs moisture from the air.

(3).—Drying out of the leaf is caused by a sudden discontinuity in the transpiration stream. There is, generally, no intermediate wilting stage. The discontinuity arises in the leaf not in the conducting system of the shoot.

(4).—While it has been shown that potash starvation may lead to scorching of the foliage, the relation of potash deficiency in the soil to the water relations in the transpiring shoot needs further study. The fact that it has been proved that the photosynthetic process in the leaf is depressed when potash is withheld leads to the conclusion that this relation will soon be established.

TRIAL ORCHARDS.

(O. Grove and T. Wallace.)

During the autumn of 1921 the Trial Cider Orchards in Worcestershire and Herefordshire were visited, but as it was not possible to complete the analyses of the soil samples taken from the orchards before the publication of the Annual Report of that year, it was

decided to hold back the whole of the report on the tour until the soil data were available.

The report on the trees in all of the Trial Orchards in the two Counties, together with the soil data from these and remarks on their management, etc., are given below.

This report concludes the present series on the Trial Orchards planted between 1908-1910. The former reports of the series on those situated in Devon, Gloucester and Somerset having appeared in the Annual Report for 1919 and on those in Monmouth in the Annual Reports for 1919 and 1920.

WORCESTERSHIRE.

Madresfield Court, Malvern.—Geological Formation, New Red Sandstone, Keuper Marl.

This orchard was planted in 1908 with two trees of each of the following varieties of cider-apples: Cap of Liberty, Foxwhelp, Cherry Pearmain, Cowarne Red, Dymock Red, Fair Maid of Devon, Neverblight, Skyrmes Kernel, Broadleaf Norman, Court Royal, Improved Pound, Sweet Alford, Sweet Coppin, Cherry Norman, Dabinett, Knotted Kernel, Medaille d'Or, Rouge Bruyere, Strawberry Norman and two trees of each of the following varieties of perry pears: Barland, Butt, Oldfield, Moorcroft, Pine and Taynton Squash.

The orchard was in splendid condition, the trees on the whole were remarkably healthy and clean, well developed and with excellent heads. Cap of Liberty and Fair Maid of Devon were very fine specimens. Only three varieties did not come up to the high standard of the rest. These were Cherry Pearmain, Dabinett and Medaille d'Or. The first two were rather undersized, especially Dabinett, which had not done well. The Medaille d'Or trees were useless, the thin spreading branches characteristic of this variety being mostly broken down.

All the perry pears were in very good condition. All the trees were very clean and had been sprayed with caustic soda in 1920.

This orchard, previous to 1920, in which year it was broken up, had been in pasture. It was cropped with potatoes in 1921.

The trees were given two dressings of farmyard manure shortly after planting, and in 1916 a dressing of basic slag at the rate of 10 cwt. per acre was given.

The soil is very heavy—especially the subsoil—the percentages of both clay and fine silt being high. It also contains many stones—small-pieces of sandstone.

The surface soil and subsoil contain high percentages of total

potash, whilst the amounts of available potash in them are low. The amounts of total phosphoric acid are low, whilst those of available phosphoric acid are fair. There is no carbonate of lime present in the soil and both surface soil and subsoil have small lime requirements.

Newnham Court, Tenbury.—Geological Formation, Old Red Sandstone.

The orchard was planted during 1908 and 1909 with the following varieties: Broadleaf Jersey, Broadleaf Norman, Knotted Kernel, Medaille d'Or, Strawberry Norman and Cherry Norman.

This orchard is situated on a fairly steep hill. On the top of the hill where the soil is rather shallow the trees have done rather badly, but on the lower parts they are more satisfactory. The variety that has given the best results is Broadleaf Jersey. The trees were well developed, of a good size and carrying a fair crop of highly coloured fruit. The next in the order of merit was Knotted Kernel. The trees of this variety had good heads and were of a fair size. The Strawberry Norman and Cherry Norman trees were not quite up to the standard of the other varieties, especially the last named, which were lacking in size. The Medaille d'Or trees had been quite unsuccessful and all the trees had been regrafted.

The soil varies in depth in this orchard, being only about 9 ins. deep on the brow of the hill and over 18 ins. deep lower down the slope.

The orchard is normally stocked very heavily. A dressing of basic slag was applied in 1914 or 1915.

The surface soil sample is a general one for the orchard, but the subsoil sample was taken from the area on the brow of the hill.

The mechanical analyses show the surface soil to be very close textured, containing very little of the coarser fractions, and the subsoil—which is sharply defined from the surface soil—to consist chiefly of the middle fractions—fine sand and silts.

The chief points in the chemical analyses are the high percentages of total potash in the surface soil and subsoil; the low total phosphoric acid in both samples; and the remarkably high available phosphoric acid in the subsoil. The surface soil contains a trace of carbonate of lime, whilst the subsoil contains none, though it has no lime requirement.

Powick Asylum.—Geological Formation, New Red Sandstone, Keuper Marl.

The varieties planted in 1908 were the following: Foxwhelp, Hereford Redstreak, Broadleaf Norman, Eggleton Styre, Knotted Kernel and Strawberry Norman. All the trees have done fairly

well but are lacking in size. Broadleaf Norman, Hereford Redstreak and Knotted Kernel were the best developed. The trees were bearing for the first time. The crop was a moderate one.

It is probable that this land has been in pasture for 45 years, before which period it was arable.

During the last 10 years the land has been liberally manured, three dressings of basic slag having been applied during this period. Pigs have been run in the orchard for the last three years.

Both the surface soil and the subsoil are very heavy, containing high percentages of fine silt and clay. The total potash is high in both samples and the available potash is very satisfactory in the surface soil. Total phosphoric acid is fairly good in both surface soil and subsoil, but the available phosphoric acid is low in the latter.

Both samples contain a large percentage of carbonate of lime—the amount in the subsoil being especially high.

Hyde Farm, Upton-on-Severn.—Geological Formation, Alluvium.

The trees were planted in 1908, and the orchard contained the following varieties: Kingston Black, Court Royal, Ecarlatine, Harry Masters, White Jersey and Fair Maid of Devon. Nearly all the trees in this orchard were small and poorly developed. The supporting stakes had been removed too early and as a result of this several trees had blown down. Court Royal and Fair Maid of Devon were the best of a poor lot. The Kingston Black trees were rather unsatisfactory.

No details were available regarding the stocking and manuring of this orchard.

The mechanical analyses of the samples of surface soil and subsoil show the texture to be similar to that of the Powick soil.

The percentage of total potash is high in both samples, whilst the percentage of available potash is fairly high in the surface soil.

Total phosphoric acid is satisfactory in both samples, whilst each contains a high percentage of available phosphoric acid. Both surface soil and subsoil contain carbonate of lime.

Woollas Hill, Pershore.—Geological Formation, Lower Lias.

Three cider and two perry varieties were planted in 1908: Foxwhelp, Skyrmes Kernel and Sweet Alford; Barland and Oldfield.

Foxwhelp is the only variety that has not done well in this orchard. The trees are much too small for their age, but otherwise are in healthy condition. The Sweet Alford trees were very good, having well-developed heads and the same was the case with Skyrmes Kernel. The Barland trees were remarkably big and splendidly developed. The Oldfields have also formed very good trees.

The orchard forms part of a very old pasture and of recent years it has been very heavily stocked with cattle, which have been fed with cake.

The soil appeared to be very deep.

The textures of both the surface soil and subsoil are similar to those at Powick and Upton.

Although the amounts of total potash in the surface soil and subsoil are large, they are much smaller than in the samples from Powick and Upton.

The available potash is low in both samples. The percentage of total phosphoric acid are fairly high in both samples, whilst the amount of available phosphoric acid in the surface soil is poor and very poor in the subsoil. The surface soil contains no carbonate of lime and shows a lime requirement, whilst the subsoil contains a trace of carbonate of lime.

The Stocks, Suckley.—Geological Formation, Old Red Sandstone.

The following four varieties were planted in 1908: Cherry Pearmain, Kingston Black. Knotted Kernel and Strawberry Norman. All the trees were rather small but otherwise in healthy and clean condition. The Strawberry Norman trees had done best in the orchard and were carrying a good crop. The Kingston Blacks were only moderately good and the two other varieties were decidedly undersized.

The herbage in this orchard was in excellent condition, being nicely grazed and containing a large amount of white clover.

The soil appeared to be of great depth. was devoid of stones and easily friable.

The mechanical analyses show the soil to be a sandy loam with a texture typical of the soils of the Old Red Sandstone Formation. The dominant fraction is the "Fine Sand," of which a higher percentage is contained in the subsoil than in the surface soil.

The total potash is fairly high, but the available potash is very low in both samples.

The percentage of total phosphoric acid is low in both samples and whilst the available phosphoric acid is not high in the surface soil, it is low in the subsoil.

Neither samples contain carbonate of lime and both show a lime requirement.

HEREFORDSHIRE.

Burghill Asylum.—Geological Formation, "Drift" over Old Red Sandstone.

Twelve trees of each of 25 varieties were planted in 1908. In 1919

all the trees had cropped heavily, but as the heads were two spreading and too strongly developed in proportion to the trunks they were cut back hard. On the whole the trees have developed satisfactorily, but towards the top of the slope many of the trees have only made moderate growth. Previous to the breaking up of the sod in this orchard in 1916 the whole of the trees had made poor growth. The following varieties were the most successful: Fair Maid of Devon, which were probably the finest trees in the orchard and which were carrying a splendid crop, Sweet Alford, Eggleton Styre, Improved Pound, Court Royal, Cap of Liberty, Strawberry Norman, Sweet Coppin, Knotted Kernel, Broadleaf Jersey, Cherry Norman and Killerton Sweet. All of these were very satisfactory. Foxwhelp, Skyrmes Kernel, Butleigh No. 14, Dabinett, Redstreak, Yarlington Mill, No. 32, and Kingston Black Improved were not quite such well developed trees. The Kingston Black trees were also on the small side, especially on the higher part of the orchard, which is rather wind-swept. The Cowarne Red trees had suffered from canker but were recovering. All the Medaille d'Or trees had been more or less broken down by the wind and had all been regrafted with other varieties.

Previous to 1916, this orchard had been for many years a pasture of poor quality which had occasionally been put up for hay.

The trees were planted whilst the sod was in this poor condition. In 1916, the pasture was ploughed up and since that date the land has been cropped with arable crops and has received generous manurial treatment. The orchard is situated on a fairly gentle slope and the soil near the top of the orchard is shallow and of a gravelly nature, whilst on the lower areas of the slope the soil is less stony and is much deeper.

The soil samples were taken from the lower portion of the orchard.

It will be seen from the mechanical analyses that both the surface soil and subsoil contain large percentages of stones and fair amount of coarse sand. The percentages of the middle fractions present are fairly high, whilst the percentages of clay are not high.

The total potash is fairly high in both samples, whilst the available potash is low in the subsoil. The percentages of total phosphoric acid is high in the surface soil and only moderate in the subsoil. The amount of available phosphoric acid is very high in the surface soil and very low in the subsoil. This difference may have been produced to a great extent by the recent dressings of phosphatic fertilisers which have been given. Both samples contain small amounts of carbonate of lime.

COUNTY CIDER ORCHARDS—PLANTED 1908.
Worcestershire and Herefordshire.

MECHANICAL ANALYSIS.	Madresfield Court, Malvern.		Newnham Court, Tenbury.		Powick Asylum.		Upton-on-Severn.		Wollas Hill, Pershore.		The Stocks.		Burghill Asylum.*	
	°	°	°	°	%	%	°	°	%	%	°	°	°	°
<i>Surface Soil—</i>														
Stones	10.70	nil	nil	3.50	2.10	2.10	nil	nil	nil	nil	22.00	22.00	22.00
Fine Gravel	4.69	0.13	0.13	2.09	1.70	1.70	0.30	0.30	0.41	0.41	2.77	2.77	2.77
Coarse Sand	9.10	2.62	2.62	10.59	6.95	6.95	4.47	4.47	3.35	3.35	15.74	15.74	15.74
Fine Sand	20.73	19.30	19.30	12.60	14.97	14.97	13.71	13.71	32.16	32.16	28.18	28.18	28.18
Silt	17.91	26.71	26.71	9.84	14.10	14.10	15.12	15.12	23.60	23.60	20.32	20.32	20.32
Fine Silt	24.59	27.82	27.82	20.97	23.42	23.42	27.03	27.03	22.98	22.98	17.07	17.07	17.07
Clay	14.58	12.99	12.99	25.51	23.74	23.74	23.09	23.09	9.36	9.36	8.47	8.47	8.47
<i>Subsoil—</i>														
Stones	17.40	nil	nil	3.20	6.3	6.3	nil	nil	nil	nil	29.20	29.20	29.20
Fine Gravel	5.43	nil	nil	1.71	1.59	1.59	0.21	0.21	0.23	0.23	5.16	5.16	5.16
Coarse Sand	8.04	0.27	0.27	5.71	4.58	4.58	3.52	3.52	3.77	3.77	16.04	16.04	16.04
Fine Sand	19.50	19.63	19.63	10.27	12.76	12.76	12.15	12.15	38.91	38.91	29.76	29.76	29.76
Silt	16.61	35.68	35.68	8.50	11.59	11.59	12.80	12.80	21.42	21.42	18.69	18.69	18.69
Fine Silt	23.02	31.47	31.47	23.97	23.20	23.20	25.26	25.26	19.80	19.80	16.45	16.45	16.45
Clay	23.56	6.02	6.02	31.81	35.36	35.36	33.96	33.96	10.83	10.83	8.25	8.25	8.25

CHEMICAL ANALYSIS—

Surface Soil—

Moisture ..	2.18	2.84	4.00	3.38	3.82	1.97	1.40
Loss on Ignition..	3.26	5.52	9.28	9.26	11.06	4.96	4.88
Potash (Total) K_2O ..	1.041	1.228	1.516	1.747	0.792	0.603	0.625
Ditto (Available) K_2O ..	0.0063	0.0139	0.0232	0.0158	0.0080	0.0046	0.0118
Phosphoric Acid (Total) P_2O_5 ..	0.110	0.092	0.161	0.165	0.178	0.080	0.195
Ditto (Available) P_2O_5 ..	0.0161	0.0284	0.0332	0.0342	0.0079	0.0121	0.0967
Carbonate of Lime ..	nil	0.081	2.40	0.278	nil	nil	0.094
Lime Requirement ..	0.165	nil	nil	nil	0.309	0.185	nil

Subsoil—

Moisture ..	2.32	3.02	4.22	3.31	3.88	1.52	1.14
Loss on Ignition..	3.94	3.74	5.64	5.26	6.94	3.16	3.34
Potash (Total) K_2O ..	1.307	1.330	1.838	2.277	0.929	0.600	0.629
Ditto (Available) K_2O ..	0.0043	0.0033	0.0099	0.0110	0.0056	0.0035	0.0065
Phosphoric Acid (Total) P_2O_5 ..	0.090	0.099	0.122	0.149	0.155	0.049	0.109
Ditto (Available) P_2O_5 ..	0.0136	0.0769	0.0074	0.0496	0.0034	0.0003	0.0040
Carbonate of Lime ..	nil	nil	6.70	1.20	0.009	nil	0.047
Lime Requirement ..	0.103	nil	nil	nil	nil	0.124	nil

* Denotes Herefordshire orchard.

FACTORS GOVERNING FRUIT-BUD FORMATION.—V.*(F. Summers.)***FURTHER EXPERIMENTS UPON THE RINGING AND NOTCHING OF FRUIT TREES.**

The following experiments were carried out during the growing season of 1922 in order to supplement the work of Barker and Lees upon the above subject, which is described in the numbers of this Report for 1916, 1919 and 1920.

The trees employed were wall-trained trees of pear and plum and stock types of apple, pear and cherry. All rings were made upon shoots of the previous season's growth and were about 1.5 mm. in width. The various operations described below were carried out on March 15th and 16th.

Attention was chiefly directed towards the possibility of isolating any stimulus due to actual wounding. It was further suspected that often rings which were made close up to the bud—especially on the lower side—often caused injury to the vascular system supplying the bud which thereupon became incapable of further development.

Below will be found in appropriate sections an account of the various operations and their results.

I.—Ring close to the top of the bud.

Here the ring was made as far down in the angle subtended by the bud as was possible without causing injury or disturbance to the bud itself.

(a) Pruned Shoots of Cherry.

In these the top four buds were pruned away leaving about 5 mm. of wood above the 5th bud which now became the terminal. The ring was then placed above the fourth bud below this. At the end of a month all the buds, except the basal four, had begun to break and there was a decided difference between those above and below the ring. The four buds next below were well developed with normal reddish leaves. Those above the ring were less developed, with smaller leaves from which the red pigment was completely absent. In some of the shoots these leaves became badly scorched and were on that account left out of consideration. Shoots which were similarly pruned but unringed showed an ordinary acropetal bud break with the terminal the largest.

At the ends of two months, in the ringed shoots, the buds above the ring began to make up leeway and, at the same time, both the

ring and the pruning cut showed signs of having healed. At the end of another week these buds had gone so far ahead as to give the shoot an appearance similar to that of an unringed pruned shoot, the terminal being now slightly the best.

In this case, although the possibility of a wound-stimulus to the bud immediately below the ring cannot be excluded, it appears as though the phenomena described were due, primarily at least, to interference with the water supply to the portion of the shoot above the ring coupled with excessive loss of water by evaporation from the cut end.

(b) Pruned Shoots of Apple and Pear.

An almost similar state of things to the above was found in similarly treated shoots of apple and pear, but the colour effect in the leaves was absent and the three distal buds began to overtake those below the ring about three weeks earlier. At the end of nine weeks the terminal bud was decidedly the best and the scars were completely healed. In shoots which were pruned but unringed the terminal went ahead from the start except in cases where the cut was made too close to the upper side of the bud when this suffered an initial check.

(c) Unpruned Shoots of Pear.

In these shoots the ring was placed above the fifth bud from the terminal. Bud break commenced forty days from the start, the one next below the ring being slightly ahead. At the end of a further period of fourteen days, however, the terminal had begun to outstrip the former and this relative rate of progress was then maintained for the rest of the growing period.

As in the pruned shoots of apple and pear, ringing in the distal portion of the shoot had no effect whatsoever upon the three or four small buds at the extreme base; these remained dormant throughout.

From the foregoing it appears that the retarding effect due to the pruning cut was relatively greater than that due to the ring, but that when the two were combined the first effect was greatly magnified and, in consequence, the buds above the ring recovered their dominance much less rapidly.

(d) Unpruned Shoots of Plums.

The rings were made in this case not only in the upper portion, but also in the middle and near to the base of the shoot, viz., above the 13th and 28th buds from the apex.

In the basal region no effect whatever was produced so far as could be observed, although a pruning cut above a similarly situated bud would cause it to grow out strongly. In the more distal portion there was not more pronounced an effect than a very slight retardation of the bud above the ring or an acceleration of that below the ring according as the effect is viewed. It may be that normal bud break in this plum was so strong as to mask any effect due to ringing in the upper portion, but in only one case was the ring found to increase the relative development of buds below the ring and so disturb the normal acropetal order of development.

II.—Ring close to the Base of a Bud.

It was found that ringing to the wood below a bud was generally fatal to its development when the ring was placed nearer than 5 mm. to the leaf scar. The rings were therefore placed 8-10 mm. below the fourth bud from the pruned end of the shoot.

(a) Pruned Shoots of Cherry.

The course of events here was almost precisely the same as that described in I (a) above with this exception; the bud immediately above the ring did not recover from its initial check but remained the smallest throughout. In other cases the bud immediately below the ring reached a stage of development slightly greater even than that of the terminal.

(b) Pruned Shoots of Apple and Pear.

Here a similar state of things was found in respect to the results described under I (b). The bud immediately above the ring made very little progress in any case, while often the bud next below reached a stage of development at least equal to that of the sub-terminal.

(c) Unpruned Shoots of Pear.

No retarding effect was found here above the ring during the first month. In some cases where the bud above the ring appeared to be retarded at the commencement of bud break this effect was quickly eliminated and an acropetal order of development brought about. The terminal bud retained its dominance throughout and again the most basally situated buds failed to make any growth.

(d) Unpruned Shoots of Plum.

The bud immediately above the ring was, in most cases, definitely retarded and, although a good deal of recovery was made during the second month, it generally remained at least slightly below

normal. The question still needs investigation as to how far there is a greater risk of injury by ringing to the bud of the plum than to that of the apple or pear and these experiments will be repeated in combination with histological examination of the treated shoots.

III.—Ring midway between two Buds.

In these experiments it was expected that any stimulus to growth, due to wounding, would affect similarly the two buds immediately above and below the ring.

(a) Pruned Shoots of Cherry.

These shoots were pruned as in I (a) and II (a) before being ringed. Contrary to the results in these two cases the two buds next below the ring showed maximum development throughout in spite of the large amount of recovery from the initial check made by the buds above the ring. That immediately above the ring was persistently smaller than the two on each side of it.

(b) Pruned Shoots of Apple and Pear.

The results obtained here agreed with those described under I (a) except in those cases where the ring was placed in the basal or lower middle portion, when there was no perceptible effect due to ringing.

(c) and (d) Unpruned Shoots of Pear and Plum.

No definite results were obtained when shoots of this kind were ringed in their upper or middle portions. Negative results always followed similar treatment of the basal portion.

IV.—The Effect of Longitudinal Slits.

In further experiments on the wound effect slits of the same width as the rings employed above were cut down the shoots from immediately below the base of one bud to the top of the next but one below. Slits of this kind were made in the upper third of some shoots and in the middle and lower thirds of others. Although numerous shoots were treated in this manner only two cases of exceptional bud growth in the region of the cut were observed and these both occurred in unpruned shoots of pear. In each case the bud below the slit produced a slightly better developed shoot than any but the terminal and sub-terminal.

On the whole, however, the results of these experiments are best regarded as negative.

V.—The Annular Notching of Buds.

In this operation a ring of the usual width was placed round an individual bud at a distance of 5 mm. from it as centre. A small but distinct effect was the result in unpruned shoots of plum and in pruned shoots of pear and apple. The effect was not noticeable in buds of the upper and middle portions of the shoot owing to its transience. In the lower portion the buds near to the base could be brought to the point of breaking by ringing in this way, but only in the case of the plum was there sufficient further progress to produce a tiny shoot. It should be remarked that the buds of this plum were to the eye comparatively stronger than the correspondingly situated buds of the pear and apple, so that it is probable that there is a varietal difference involved here. In any case the response should be regarded as a pure wound effect; the bud can be stimulated to begin growth but the conditions for further development are evidently absent.

VI.—Conclusion.

While the foregoing observations are far from complete they possess a certain amount of interest when considered together.

Apparently a definite wound stimulus does come into action when a shoot is notched or ringed in the neighbourhood of a growing point. (This wound stimulus has of course nothing to do with the effect of a mechanical injury such as severing the channels of water supply to the bud). The stimulus is slight and is probably manifested through the increased respiration of the growing point causing the beginnings of growth in the bud. It is too small to be apparent in normal quickly-growing buds, where it is masked, and the subsequent growth of a bud so stimulated depends on some other factor.

A ring definitely modifies the water supply system of the shoot to the disadvantage of the bud next above the ring. If a vigorous terminal bud is present the severity of this is mitigated so far as the former bud is concerned as though the terminal had the capacity for uplifting adequate supplies of water past the break in the conducting system. When the terminal is absent, or is replaced by a source of water loss, *e.g.*, a pruning cut, the severity of the modification is increased and until the surfaces of the ring and cut are healed the buds above the ring suffer from an inadequate water and food supply.

The precise manner in which the water supply is modified is being investigated and will be discussed in a future report.

FACTORS GOVERNING FRUIT-BUD FORMATION.—VI.

(F. Summers.)

THE STIMULATION OF BUD GROWTH IN CUTTINGS BY INORGANIC AND ORGANIC SOLUTIONS.

In 1918 the American worker, Curtis, published the results of an extensive series of researches on the stimulation of root-growth in cuttings by treatment with chemical compounds. The greater portion of this work was carried out upon cuttings of the Privet (*Ligustrum ovalifolium*), but cuttings of species of *Prunus*, *Populus*, *Kerria* and *Forsythia* were also employed.

The solution investigated chiefly as a stimulant was potassium permanganate (KMnO_4), but solutions of other manganese salts were also tried in addition to those of salts of iron, calcium and boron. In a second part of the investigation solutions of saccharose, glucose, peptone, asparagin and other organic substances were employed.

The cuttings were apparently immersed for a certain length of time in a bath of the particular solution under trial and, after being washed free from the chemical, were grown on either in distilled water or moist sand.

Although the author's attention was primarily directed to the stimulation of root formation certain effects upon the top growth of the cuttings were observed which are of interest as bearing on the problem of bud stimulation.

Curtis found that if unripe succulent cuttings of *Ligustrum*, gathered on August 30th, were allowed to stand for three days in solutions of 1 to 10 per cent. of cane sugar and then were brought into distilled water the resulting root-growth was markedly increased, the greatest increase being shown by the cuttings which had been treated with the strongest sugar solution. Not only was the sugar absorbed, but it was converted into starch and stored in the cuttings in that form. Such immature twigs could, if stood in the sugar solution for two days, store sufficient starch to permit of top growth being started in addition to growth of the roots.

Although the cuttings died if left continuously in sugar solutions, mature cuttings brought into distilled water after treatment for 2 to 15 days showed increased top growth of a peculiar character. This consisted of a maximum development of shoots from the 2nd to 4th internodes from the top coupled with partial or total inhibition of growth from the buds of the uppermost nodes. Even when darkened these buds developed although the uppermost ones had at the same time been exposed to light.

Curtis advanced two alternative explanations of this disturbance of order of development. On the other hand he considered that the sugar might increase the concentration and osmotic pressure in the cells of the lower part of the cutting and thus withdraw water from the upper part; on the other hand he considered that an increased supply of organic matter might be made available for the lower buds which, in consequence, would be able to grow out earlier and more strongly than the upper buds. As evidence supporting the first of these, he described how, in practically all cases, the upper part of the shoot became withered after the shoots below were formed.

Curtis also tried the forcible injection of cuttings of privet and tomato with sugar solutions and in this way increased greatly their sugar content. He found that the bud development of Ligustrum was thereby distinctly retarded irrespective of the solution injected. Cuttings which had been under the suction pump started growth 40 days after being set out, while untreated shoots started in 10 days.

The present writer started a series of experiments with injected apple cuttings in April, 1921. The sugars employed were saccharose, dextrose and levulose in strengths of 0.5 per cent. Other twigs were injected with diastase (5 per cent.) or tap water.

The cuttings were as uniform in size and appearance as it was possible to select and possessed 11-14 buds each. They were placed in batches of five, with their ends in a small beaker containing the liquid to be injected and then brought into a container which could be almost completely exhausted by means of a filter pump. The vacuum in the container was then gradually lowered when the gases in the spaces of the cutting quickly rushed out from the cut end. The original pressure was then gradually restored and the solution allowed to penetrate into the twigs. These were then rinsed and placed with their lower ends in tap water.

Preliminary experiments, in which a 1 per cent. solution of watery eosin was employed, were carried out in order to gain some idea of the distance to which an aqueous solution could penetrate under the conditions of experiment. In one such test an apple shoot, 26cm. in length and having 13 buds, was injected as described above with eosin and subsequently sectioned. The stain could be traced definitely in the wood for a distance of 20 cm. For the first 15 cm. of this the stain was deep in both the outer and inner layers of the wood. For the next 3 cm. it was quite decided in the outer layers, but fainter in the inner, while in the succeeding 2 cm. it was only possible to trace it faintly in the outer layers.

The penetration into the vascular strands of the individual buds was not altogether what would be expected to correspond with this gradient. It was very marked in the case of the three basal buds, but there was no penetration at all to the three next above. Penetration to the 7th and 8th from the base was good but not in the uppermost four. Where penetration was good the stain could be seen collected densely in the growing point itself. If, therefore, the action of an injected fluid is strongly localised the possibilities of irregular penetration must be considered.

There was no sign of a retardation of bud-break consequent upon injection such as that described by Curtis for *Ligustrum* and which he ascribed to an additional rest period induced by filling the air spaces of the cutting with fluid. But, as observed by Curtis, in the case of cuttings he treated with saccharose, there was a tendency for those injected with dextrose or levulose to show the strongest bud development in the internodes below the terminal three. In the cuttings treated with saccharose, however, the terminal buds invariably grew out most strongly.

During the first forty days the buds of all the injected cuttings, including those injected with water, were always more advanced than those of the non-injected controls. In all cases there was the tendency for the buds at the base, *i.e.*, nearest the water, to show the first signs of breaking.

At the end of three weeks there was not much difference in point of development between the sugar-injected cuttings and those injected with water. During the next ten days the buds of the former went decidedly ahead, saccharose apparently being, on the whole, superior to either dextrose or levulose as a stimulant. Diastase was uncertain and irregular in action, which behaviour was probably connected with incomplete penetration owing to the colloidal nature of the solution.

If the cuttings were given a second injection a week after the first the stimulating effect was increased, especially in the case of levulose.

A parallel series of experiments was carried out in which the cuttings, after injection with sugar, were ringed to a width of one centimetre in the fourth internode from the base. The result was the same in every case; the buds below the ring grew out normally but, before any growth could be made by those above the ring, the portion of the shoot there became shrunken and dessicated. The atmosphere of the room was very dry and, in all probability, the evaporation from the surface of the ring was so severe as to withdraw water from the shoot above it and, at the same time,

interrupt the upward flowing water current. The existence of such an effect has been shown by potometer experiments to be described elsewhere.

When the results above are considered, together with those of Curtis, the following conclusions can be drawn.

(1) Bud growth may be both accelerated and increased by injection of cuttings with solutions of sugars or diastase in suitable strengths.

(2) Irregularities of bud break, *i.e.*, so-called disturbances of polarity, may be due wholly or in part to irregularities of penetration on the part of the injected fluid.

(3) Bud break is dependent on the continuity of the water column in the shoot being maintained. The osmotic concentration of the sap alone is insufficient for this purpose in the face of severe competition, *e.g.*, evaporation from the wound surface in ringed shoots.

The third conclusion above applies only to shoots in the earliest stages of bud break. As the development of shoots proceeds these become able to maintain a continuous water supply even when evaporation is severe.

No stimulating effect was found when cuttings were injected with potassium permanganate in 0.5 p.c. solution, nor were two successive injections more successful in this respect. Phosphoric acid in 0.05 p.c. solution appeared to have a slight but definite stimulating effect upon the terminal buds which soon out-stripped the corresponding buds of the controls and at the end of forty days were better even than those of the levulose or diastase-injected cuttings.

INJECTION OF ATTACHED SHOOTS WITH DIASTASE.

The experiments to be described below were carried out on shoots of the previous year's growth of two pot trees of Brayton Hall and Woolf River.

In one case, which may serve as an example, the shoot was furnished with 34 buds. On April 19th the first 28 buds from the apex were on the point of breaking. The remainder showed no signs as yet, but only No. 34 appeared to be definitely dormant. By means of a hypodermic syringe a 1 p.c. solution of diastase was injected into punctures made on each side of the bases of buds 18, 26 and 31, the punctures being made to the level of the lowest part of the growing point in each case. Two further injections, this time with 5 p.c. diastase, were made at intervals of one week from the start. Control shoots were merely punctured and inoculated with water.

Although there was no great response in the case of bud 26, the

other two went ahead from the start. By the sixth day 18 was much better than the terminal, while 31 was the fourth bud, in descending order of magnitude, buds 32 and 34 were still dormant.

This relative rate of progress was maintained throughout the growing season until finally 18 and 31 had each produced an extension shoot, while no other bud had done more than give rise to a short spur. The extension shoots were certainly spindly in form and, although they began to grow out normally in the spring of the following year, most of the leaves produced by both terminal and lateral buds became infected with mildew (*Podosphaera leucotricha*), while the rest of the tree was free.

The control shoots showed none of this increased growth which must therefore be ascribed to the agency of the diastase. The action of this enzyme upon the reserve carbohydrates of the tissues in the neighbourhood of the growing point leads, in all probability, to the provision of a greatly increased store of soluble products which enable the bud in the early part of the season to gain an advantage over those on each side. As the early stages of development proceed and the leaves of the shoot begin to develop a transpiration current to it this concentration gradient becomes flattened out and finally reversed when soluble carbohydrate material is transferred back to the shoot from the leaves. By this time, however, buds which have meanwhile made little or no growth are definitely too backward to produce more than a dwarf shoot.

According to this view, not only the quantity of reserve carbohydrate near the growing point is decisive of the performance of the bud, but also the rate at which this is made available by enzyme action during the early stages of growth.

The interest of the above observations lies chiefly in their clear indication of the possibility of stimulating the buds of any portion of the shoot to increased quantity of development by appropriate methods and agents. It remains to be investigated whether this is merely a function of the quantity of available food reserves or whether there exists an additional "bud factor" which precludes the fullest development as in the case of the spindly diastase-injected shoots.

THE APPLE BLOSSOM WEEVIL: ITS LIFE-HISTORY AND CONTROL.

(Herbert W. Miles.)

In 1920 a summary of the life-history of the Apple Blossom Weevil was given in the Annual Report of this Station, and since that time the details of the life cycle have been traced through two

seasons, and some work has been carried out on control measures. The detailed accounts of this work have appeared elsewhere*, but it is thought advisable to include here an outline of the life-history emphasising important points and an account of suggested methods of control.

LIFE HISTORY.

The first appearance of the weevil in the plantations is towards the end of March. The insects leave their winter quarters, and may be seen crawling actively about the apple and pear trees, piercing the developing fruit buds and feeding on the juices accumulating near the growing point. This activity occurs in bright sunshine and at about mid-day the weevils can be seen in greatest numbers, stimulated, apparently, by the sun's warmth. The first spring feed excites the sexes and mating takes place in the branches. At this period the weevils are seldom seen on the wing; they are very sensitive to the least touch or jar to the branches, and fall immediately with folded limbs. Feeding and resting take place alternately until early in April, when egg-laying commences. By this time the buds have reached that stage of development known as the cluster-bud stage, *i.e.*, when the inflorescence buds are in a firm, compact cluster, surrounded by a rosette of foliage leaves. The interval between mating and egg-laying varies from a fortnight in an early season to three weeks in a late one. The act of oviposition is as follows: The female selects the inflorescence bud to be operated on, and, by means of the sharp mandibles, located at the apex of the rostrum, or snout, drills a hole, rejecting the surface tissue of the calyx. The rostrum is then thrust downward, practically its whole length, into the compact tissue of the bud, and the head is rotated from side to side as the drilling proceeds. The insect then remains still for about ten minutes, while a cavity is gnawed into the lobe of the anther, which is located immediately below the hole in the calyx. The rostrum is then withdrawn and the insect, reversing her position, extends the ovipositor, which is thrust into the prepared aperture and an egg is deposited in the cavity in the anther lobe, an act taking about two minutes. The period occupied by the whole process varies from 15 to 20 minutes. When the act is completed and the ovipositor withdrawn, a sappy exudate from the damaged tissue fills the aperture in the calyx, and, congealing, effectively seals the opening. During the ovipositing period the females may be found secreted in the inflorescence clusters and in the small notches

* *Journ. Min. Agri.*, October, 1922; *Journ. Pomology*, January, 1923.

amongst the fruit spurs. Feeding on the flower buds continues for two to three weeks after the first sign of oviposting.

The eggs hatch in from eight to thirteen days, the time varying with the weather conditions prevailing. On hatching the minute larvæ are soft, white, legless grubs with a much wrinkled, slightly hairy body and a large dark-coloured head. These young larvæ commence feeding on the pollen in the anther lobes, completely destroying the stamens, the styles, and, finally, even attacking the surface of the receptacle. The curious "capped" effect of infested blossoms is produced by the larvæ gnawing through the bases of the petals, which wrinkle, turn brown, and remain attached to the receptacle by a few strands. These brown petals are folded together and form a dome-shaped cap under which the larval and pupal stages are spent. The larval stage lasts for 15 to 17 days, several moults taking place as development proceeds. The fully-fed larvæ are dirty white or creamy-coloured, and present a mottled appearance owing to the brownish stomach contents showing through the outer skin. Just prior to pupating, however, the larvæ assumes a clear, light, yellow appearance. The pupæ are yellowish, soft and fleshy, and are clothed laterally and dorsally with numerous stout bristles. The limbs, antennæ and rostrum are folded in characteristic fashion and can be seen through the transparent pupal coat.

The pupal stage is from five to eight days in duration, and at the end of this period the fully developed weevil sheds the pupal coat, and, after hardening up beneath the shelter of the capped blossom, cuts a circular exit hole and escapes.

The newly emerged adults are very active and fly much more readily than the over-wintered form. They feed on the petals of any late blossom, and on the under-surfaces of foliage leaves of apple and plum, rejecting the lower epidermis, but destroying the mesophyll or internal leaf tissue, and leaving the upper epidermis intact. The young adults feed and rest alternately though not so markedly as to over-wintered adults, and any cold weather in summer causes them instantly to seek shelter under the rough bark of orchard trees or in canker spots. The first appearance of the young adults is in May, the majority are fully fed by the end of June, and in a normal season seek winter quarters from early July. The winter sites selected are in rough bark on main branches and trunks of orchard and forest trees, in cankered areas about trees, under paper of old grease-bands, and in the soil.

NATURAL ENEMIES.

The principal agents in controlling the Apple Blossom Weevil are birds, fungi and insects. Woodpeckers, nuthatches and chaff-

finches take the adults and sparrows are recorded to peck open the capped blossom and destroy larvæ and pupæ. A fungus which was in evidence at Long Ashton attacking the over-wintering adults, was apparently a species of *Isaria*, a common insect-attacking fungus. Of parasitic-insects checking the increase of the weevil the principal species is *Pimpla pomorum*, Ratl., an Ichneumonon fly. This species parasitised weevils at Long Ashton in 1921 to the extent of 5 per cent.

CONTROL MEASURES.

Among the measures suggested for the control of the Apple Blossom Weevil, spraying, jarring, and banding have been variously recommended, as also has the collection of the capped blossom and the liberating of any parasites which may develop on the contained larvæ and pupæ of the pest. Jarring yields satisfactory results where it can be constantly followed in small plantations of bush-trees, but a difficulty apt to be met with is that on dull days the weevils refuse to fall on jarring, and on bright still days many falling as a result of the jar spread their wings and fly to adjacent trees. In France collecting capped blossom and liberating the Ichneumonid parasites was found to have very far-reaching effects and is well worth a trial where the trees are small enough to be within reach of the ground. Where step-ladders have to be used this treatment becomes more laborious and expensive. As regards banding the principle is to provide a shelter, under which the fully-fed insects will secrete themselves for resting or hibernation; sacking, brown paper, or corrugated paper is quite satisfactory. The bands should be periodically examined and the weevils collected and destroyed by crushing or dropping into paraffin. In order to trap weevils going into hibernation the bands should be in position by the middle of June.

SPRAY TREATMENT.

Since caustic soda and lime wash have been advocated from time to time it was thought advisable to test these two sprays at Long Ashton, and in 1921 trials were made, the weevils, however, successfully withstood the treatments, remaining quite unaffected by the caustic soda and being found feeding with lime still adhering to them. Since the over-wintered weevils reject the surface tissue when feeding at the buds and the young adults when feeding on the lower surface of the foliage leaves discard the epidermis, poison sprays such as lead arsenate, are useless.

Numerous substances and proportions were tried at Long Ashton, but the only spray selected for trial in a grower's plantation was an unstable paraffin-emulsion consisting of :—

Potash Soft Soap (Liquid form)	..	5%
Paraffin	..	10%
Soft Water	..	89.5%

This spray required thorough emulsification and was constantly agitated while being applied. On touching the trees the emulsion broke down and the paraffin "crept" into all cracks and crevices amongst the bark, killing the weevils within about a quarter of an hour. The important points to remember about using this spray are the time of application, viz., late in February or early in March, before any signs of bud bursting are visible; and the need for constant stirring while it is being applied. The spray need only be directed against spots likely to harbour the weevils, such as rough bark, gnarled areas, cankered areas and growth cracks. Used thus in Worcestershire in 1922, 20 gallons of spray was found to be sufficient for about 60 bush trees.

The only other spray which has been found to have any bearing on Apple Blossom Weevil control, is Lime Sulphur. When this spray is used annually as an insurance spray it is found to dry the bark and render this site practically totally unsuitable as winter quarters for the weevil, which select those sites where a certain degree of moisture is maintained throughout the winter.

As suggested elsewhere,* no one method is likely to yield complete control of the Apple Blossom Weevil, but where two or three measures can be employed in conjunction, in a plantation, a reasonable freedom from the pest is obtainable, and the paraffin emulsion herein referred to is certainly worthy of consideration by growers who are troubled with this pest.

RESEARCH WORK ON WILLOWS.

(II. P. Hutchinson.)

Although willows and osiers have been grown for basket making purposes in this country for many centuries, little scientific attention has yet been paid to the industry. Beyond the discovery of the buffing process, about the year 1860, and some improved methods of cultivation arising from the use of improved agricultural implements, few advances in methods of production have been made since the Roman times.

* *Journ. Ministry of Agric.*, Oct., 1922.

The economic importance of the industry may be gauged from the fact that in 1920 the annual value of the imports of willows and canes for basket making purposes was £592,718 and of manufactured baskets and basket ware £557,351.

Further, large areas of suitable willow growing land (much of which is now unproductive), exist, chiefly in the low lying parts of river valleys and coastal districts of the country, which might be devoted to willow cultivation. In many parts both soil and climate are particularly suited to the growing of the best varieties; thus the area under willow cultivation might be profitably extended.

Support is given to this view from the fact that of late years there has been a decline in the country's production of willow rods, chiefly due to neglect in cultivation of willow beds during the war years. Large quantities of willows are now imported from France, Belgium and Holland, so that with improvements in trade, which are anticipated, it is likely that English basket makers will be compelled to rely largely on imported rods for material and the public on foreign made baskets owing to the scarcity of home grown willows which, with a continuation of present conditions, is likely to arise.

In addition to reduced acreage, the yields of willows are now considerably impaired by injuries caused by various fungi and insect pests. Records show that such attacks have frequently occurred in the past; but of late years, owing to lack of knowledge of effective remedies, these pests have become so firmly established in important willow growing centres, as to cause financial losses in the cultivation of the crop. In some cases, the virulency of the attacks has thrown willow beds completely out of cultivation.

The Station, through its officer, provides advice on all matters connected with the cultivation and management of the crop.

Scientific investigations at the Research Station have been arranged on the following lines.

CLASSIFICATION.

A willow-plantation comprising all the commercial varieties of basket willows grown in this country will be laid out. Identification will then be possible and reliable information obtained on quality and other characters of the rods of the various varieties. The suitability of varieties will be determined for varying soil conditions and for the making of the different types of basket ware. The plantation will serve as a source of supply of cuttings true to name and free from disease and will also provide material for research purposes in connection with the preparation of rods for use.

INSECT AND FUNGOID PESTS.

Willow growers and basket makers regard this branch of the work as of considerable importance, and their co-operation will be given to experimental trials which will be carried out in the field. The life histories and habits of the insects and fungi concerned being at present imperfectly known, an extensive scientific enquiry is needed before practical remedies can be ascertained.

Fungoid attacks, causing depreciation in value, which occur on rods during their period of preparation and later storage, of which scientifically little is known, will be investigated with a view to the discovery of remedial measures.

PREPARATION OF RODS FOR USE.

The method now employed for peeling willows is tedious, slow and expensive. Hence the high cost of production results in high prices to the basket-maker for material and subsequently in high prices to the public for baskets.

Experimental work will be undertaken with a view to reducing costs of production by improving willow peeling processes.

Peeled willow rods are now marketed in two colors only, viz., "White" and "Buff." By investigation of willow bark products it may become possible to induce the formation of various colored rods for commercial purposes.

MANURIAL TREATMENT.

Little information exists in regard to manurial requirements of the willow crop. As it is probable that varying constituents of plant food affect yield and quality of rods, a scheme of manurial treatment has been devised for the obtaining of information which will enable willow growers to apply the manures most suited to the crop's requirements.

BARK CANKER DISEASE OF APPLE TREES, CAUSED BY *MYXOSPORIUM CORTICOLUM*, EDGERTON.

(Grace Gilchrist).

At Long Ashton, in 1920, a disease was noticed in a plantation of bush apple trees doing very severe damage to the branches. In some cases, only one branch was affected and in others the disease had reached the crown of the main trunk and the trees were doomed.

A character of the disease was the formation of large longitudinal scars on the sides of the branches and this symptom together with the occurrence of numerous pustules of spores of the fungus *Myxosporium corticolum*, Edgerton, led to the identification of the disease as bark canker. Hitherto this disease had not been reported in this country, although it has been known in the United States since 1910.

The most characteristic feature of the bark canker disease is the extremely long narrow scars which it produces. These may run for a length of two or three feet down one side of a stem and not reach a breadth of more than $1\frac{1}{2}$ inches. The disease may start at the top of one of the main branches and grow downwards, or it may develop from the soil level infecting the trunk and causing the rapid death of the trees. The dead area of the scar is somewhat sunken below the surrounding tissue owing naturally to the lack of new growth taking place. The edges of the scar are usually well defined by a rather deep crack and sometimes the formation of a callus round the healthy regions is noticeable during the summer. The dead tissue is usually found covered with innumerable small fructifications scattered over its surface. Under normal conditions merely the openings of the fructifications can be seen, but after a damp foggy night, the spores accumulate at the openings and can be recognised as small white points. These spores are oval or slightly allantoid in shape, although occasionally they are found to be quite curved. The end of the conidium nearest the conidiophore is somewhat bluntly pointed, while the other end is conspicuously rounded. The cell wall is comparatively thick. These conidia are unicellular, hyaline in colour, and contain large refractive globules varying from 1 to 35μ in diameter. The conidia vary in length from 25μ to 45μ , and in width from 9μ to 18μ .

A rather unusual feature of this disease is the seasonal activity of the fungus. At only one period of the year do the scars increase and that is usually towards the end of the summer, but it varies according to the season. In 1920, at Long Ashton, they started growth in October. In 1921 a much earlier ripening year than 1920 they started in August, whilst in 1922, a late season, the very first signs of the extension of the scars was visible on June 19th, but it was not until September that this fungus was really active. After a comparatively short period, during which time the scars extend rapidly, the fungus becomes quiescent and remains so until the following year, when it once more bursts into new growth. The interesting point is that although the fungus is always present, and presumably ready to grow, yet it is only at one period in the annual

cycle that it can do this. The cause of this is of course obscure, but one cannot help thinking that the physiological condition of the tree, or perhaps of the fungus, or possibly of both, alters during the time when growth of the fungus is just taking place. The first sign of any activity on the part of the parasite is the appearance of faint cracks in the bark for some little distance below a scar. These cracks, which at first may be entirely dissociated from any previous crack, become more distinct in a few days and finally become linked up to form a well defined line of demarcation at the edge of the bark canker, between the healthy and what subsequently becomes diseased tissue. The tissue within the crack browns and dies off, producing after some little delay the usual fructifications. These fructifications at first appear as dome-shaped swellings caused by the accumulation and growth of the fungus at various points just below the epidermis. The hyphae in the centre of these masses elongate perpendicularly to the epidermis and develop into a definite column of tissue, which forces the epidermis out. The hyphae round the base of the central column do not increase their rate of growth and these form a kind of disc round its base. The conidia are produced in large numbers from the hyphae on this disc. The epidermis remains unbroken until the conidia are ripe. Then the sterile hyphae of the central column grow until the layers of bark break. At first only a narrow opening is formed, but as the whole of the fructification grows, the slit widens and the bark is pushed outwards. Under suitable conditions of warmth and moisture the conidia are pushed out of the opening in such numbers as to be visible to the naked eye as white points.

With the canker produced by *Nectria galligena* and *Monilia cinerea*, the host plant limits the progress of the fungus by the formation of successive cork layers, not very far distant from each other. In this case, however, the cork layer is formed at very great distances from the old ones, sometimes 5 or 6 inches, or even more. A scar may progress as much as 18 inches at a single step, although in a transverse direction it rarely exceeds $\frac{1}{2}$ inch.

The opinion of American workers appears to be that the fungus is confined to the cortex and that the damage resulting from it is negligible. That may be so under American conditions, but in the case of the two outbreaks which have been recorded in England severe damage was being caused. It may be that the fungus becomes virulent when the trees are in a starved condition, but once it gets a firm hold on a plantation it may cause the loss of many trees. Not only the cortex is affected but a large part of the woody tissues also.

INOCULATIONS.

The total number of inoculations made at Long Ashton amount to 50, but so far no definite signs of successful infection have resulted. The methods of inoculation have been varied so as to obtain the conditions thought to be most likely for success but without definite result. The method which gave most success was the injection of a spore suspension by means of a hypodermic syringe. These inoculations, however, are now six months old and only show very small scars about 5 mm. in diameter.

The results from these experiments support the views of the American authors that the fungus is only a weak parasite and only under exceptional conditions does it become dangerous. When these conditions are reached, however, much permanent damage is done to the trees and they may be killed outright.

METHOD OF INFECTION IN NATURE.

Trees which are being attacked by *Myxosporium corticolum* are usually in a weak state and dead spurs are not infrequent. On such dead spurs the fructifications of *Myxosporium corticolum* have frequently been observed and it is possible that the fungus gains entrance to the tree by this means. Occasionally a fungus with a much smaller spore (9μ by 3μ) and resembling *Myxosporium mali* has been found on apple branches, but it is quite distinct from *Myxosporium corticolum*. This is interesting in view of the observations recorded by Marchal, who obtains considerable variations in the character of *Fusicoccum malorum* Oud in culture, especially as regards the dimensions of the perithecial necks and the grouping of the perithecia. So much so that it seems possible that several forms, *Apothecia pomi*, Sacc. and Schulze, and *Myxosporium mali* Bres are merely variations of *Fusicoccum malorum* Oud. *Diaporthe perniciosa* hibernates on the branches of pear and apple, producing a canker in the outer layers of the bark. The bark infections give rise to numerous pycnidial stromata in the autumn, which remain hidden in the external layers, thus simulating certain species of *Myxosporium*.

Another method by which infection takes place is through grafting wounds. In a nursery at Sandford in Somerset a number of young standard trees were found to be infected with *Myxosporium corticolum*, the fungus having entered through the exposed surface of the stock, the saddle type of grafting having been used.

Occasionally also, one finds trees which had evidently become infected from the base. Usually other fungi are present in such

abundance that it is impossible to identify the original parasite. Recently, however, a ten year old bush tree of the Lord Suffield variety died off very suddenly during July, and close examination of the main trunk showed typical fructifications of *Myxosporium corticolum* being produced in enormous numbers. The method by which the fungus entered the tree can only be conjectured. but it evidently came from the region of the ground.

**EXPERIMENTS ON CHLOROSIS--WITH SPECIAL REFERENCE
TO CASES AT WINSCOMBE, SOMERSET.**

(*T. Wallace.*)

INTRODUCTION.

The term "chlorosis" is generally applied to any abnormal condition in plants in which one of the most conspicuous symptoms is a lack of green pigment. The foliage of such plants is generally of a pale yellowish green colour and in cases of acute chlorosis the green colour may be almost entirely absent. Chlorotic plants generally make poor growth and their cropping powers are generally seriously affected by the condition.

"Chlorosis" is recognised as being distinct from "variegation" in plants, which latter is generally considered as being an inherited tendency of certain varieties of plants to grow parts of their foliage lacking in chlorophyll, and which is not usually considered as being pathological.

True chlorosis, according to several workers on the subject, may be produced by a number of causes, such as low temperatures, lack of nitrates in the food of the plants, very bright sunlight, deficiency in water supply, etc.

It is also common knowledge that many plants generally develop chlorosis on calcareous soils, whilst chlorosis of pineapple plants has been associated with high manganese content in certain soils in Hawaii.

The experiments described in this paper were carried out on two samples of soil derived from the Dolomitic Conglomerate area at Winscombe, Somerset.

One of the samples was taken from an old garden which had been highly manured and the other from a heap used as "potting" soil, which had been collected from the hillside near the garden. The latter is typical of the soil of the hill pastures of the area.

It was stated that most garden and hot-house plants, when grown in either of these soils, made very poor growth and almost always showed symptoms of chlorosis.

Attempts had been made to remedy this condition by applying

dressings of farmyard manure and of fertilisers containing nitrogen, potash and phosphoric acid, but without effect.

Soil samples for examination were obtained during the summer of 1920, and the work carried out on these is described in the Annual Report of this Station for 1920.

It was shown then that both soils contained high percentages of magnesium and calcium compounds, and that whilst the garden soil contained a large amount of carbonates, the potting soil contained only a normal amount—less than 1% reckoned as calcium carbonate.

Some preliminary experiments were carried out during the autumn of that year in which mustard and tomato plants were grown in the soils and in these experiments only the tomato plants grown in the pots containing the garden soil developed chlorosis. In these experiments the soil in some of the pots was sterilised previous to the planting operations, but this treatment did not appear to affect in any way the amount of chlorosis developed.

As the above experiments had been carried out during the latter part of the growing season, and as all the plants had made rather poor growth, it was decided to repeat the experiment, with the exception of the soil sterilisation treatment, in 1921, when other experiments were to be carried out.

1921 EXPERIMENTS.

Two series of experiments were carried out during this season and for these fresh samples of soil were obtained. Analytical data on these samples are given in Table I.

TABLE I.
SOIL DATA OF SAMPLES USED IN 1921 EXPERIMENT.

	Potting Soil. %	Garden Soil. %
Stones in sample	Nil	12.0
Moisture	4.56	3.80
Loss on Ignition	13.36	11.80
Total Potash (K_2O)	1.60	0.972
Total Phosphoric Acid (P_2O_5)	0.141	0.345
Available Potash (K_2O)	0.0247	0.0639
Available Phosphoric Acid (P_2O_5)	0.0161	0.0307
Carbonates (as $CaCO_3$)	0.78	14.90
*Calcium Oxide (CaO)	1.29	5.58
*Magnesium Oxide (MgO)	2.24	3.87
†pH value	7.22	7.10

* Soluble in concentrated Hydrochloric Acid.

† Kindly determined by Mr. E. M. Crowther, Rothamsted Experimental Station.

The first series of experiments was designed to test the following points :—

Experiment 1.—Whether tomato plants—which were known to be susceptible—became chlorotic when grown in samples of garden soil and of potting soil.

Experiment 2.—Whether the chlorotic condition produced could be remedied by spraying the foliage of the affected plants with a solution of ferrous sulphate of suitable strength.*

Experiment 3.—Whether tomato plants grown in samples of Research Station potting soil, mixed with amounts of calcium carbonate, so that the resultant samples contained amounts of carbonates equal to those in the garden soil and potting soil respectively would become chlorotic.

As a preliminary to Experiment 2, it was proposed to raise a batch of tomato plants with which to carry out spraying trials with ferrous sulphate solutions of various strengths in order to discover the best strength of solution to use in the experiment. Unfortunately the number of plants available for this purpose was small and as serious injury to the foliage resulted from all the concentrations tested—concentrations from 1.0% to 0.1% were tried—this experiment was abandoned.

Experiments 1 and 3.—For purposes of presentation it is convenient to describe experiments 1 and 3 together. In these two experiments tomato plants—three plants per pot—were grown in plant pots of 10in. diameter Nos. 1 to 12 below—containing samples of soil as under :—

Pot No. 1 contained 7 kilograms of untreated garden soil.

Pots Nos. 2 and 3 each contained 7 kilograms of garden soil from which the stones had been removed by sieving.

Pots Nos. 4, 5 and 6 each contained 7 kilograms of untreated potting soil.

Pots Nos. 7, 8 and 9 each contained 7 kilograms of untreated Research Station potting soil.

Pots Nos. 10, 11 and 12 each contained 7 kilograms of “ treated ”

* See *Journal of Agric. Research*, Vol. XXI., No. 3, May 2nd, 1921.—A chlorosis of conifers corrected by spraying with ferrous sulphate.

Research Station potting soil. The "treated" soil had been prepared by mixing the original Research Station potting soil with the calculated amount of precipitated calcium carbonate to bring the content of carbonates up to that contained in the garden soil.

Pots Nos. 13, 14 and 15 each contained 7 kilograms of "treated" Research Station potting soil. Here the treatment consisted of mixing the soil with precipitated calcium carbonate to bring the content of carbonates up to that contained in the potting soil.

Notes.—

(1) The original sample of Research Station potting soil contained no carbonates and showed a "lime requirement" of 0.425% by the Hutchinson-McClennan method.

(2) The mixing of the soil with calcium carbonate was carried out about one month before the plants were planted and during that time the prepared soils were kept in a moist condition.

The plants were transferred to the respective pots on May 14th, and during the period of treatment they received only normal watering with tap water.

Early in June the plants in certain of the pots developed chlorosis, and the condition of the plants in the various pots, as observed on June 25th, is given below.

Observations made on June 25th.

Pots Nos. 1, 2 and 3—Garden Soil. The plants in all pots were stunted and had small leaves. They were all badly affected with chlorosis.

Pots Nos. 4, 5 and 6.—Potting Soil. The plants in all pots had made poor growth, but were better than those in the garden soil. They were all chlorotic, but to a much less extent than those in Pots Nos. 1, 2 and 3.

Pots Nos. 7, 8 and 9—Untreated Research Station Potting Soil. These plants had made poor growth and their foliage showed purplish tints. There was no chlorosis present. The plants were probably suffering from the effects of the acid soil.

Pots Nos. 10, 11 and 12—Research Station Potting Soil + 14.9% CaCO₃ (i.e., similar to Garden Soil). The plants had made fairly good growth, but there was a small amount of chlorosis present—much less than in Pots Nos. 1—6.

Pots Nos. 13, 14 and 15.—*Research Station Potting Soil* + 0.8% CaCO_3 (*i.e.*, similar to *Potting Soil*). The plants had made good growth and were entirely free from chlorosis.

During July the plants in Pots Nos. 10, 11 and 12 became more chlorotic, but they were never so badly affected as those in Pots 1—6.

Towards the end of July and during August it was observed that the plants in Pots Nos. 4—6 began to make better growth and the new foliage produced was less chlorotic than the old.

The second series of experiments was commenced on July 22nd with the object of studying the effects produced on the growth of tomato plants by applying certain dressings of magnesium carbonate and of calcium carbonate to the Research Station Potting Soil.

The plants were grown in plant pots of 10in. diameter, as in the previous experiments, and the different soil treatments were as under.

A bulk of Research Station potting soil was mixed with the amount of precipitated calcium carbonate, calculated to neutralise its acidity, and samples from this prepared soil, treated as follows, were placed in the pots.

The weight of mixed soil used per pot was 7 kilograms. The final mixings, as in the previous experiment, were carried out a few weeks previous to planting. Precipitated magnesium carbonate was used in all cases where this compound was added.

Pot No. 1 contained prepared soil + calcium carbonate to bring calcium carbonate content up to 0.8%.

Pot No. 2 contained prepared soil + magnesium carbonate to bring magnesium carbonate content up to 0.8%.

Pot No. 3 contained prepared soil + magnesium carbonate to bring magnesium carbonate content up to 0.67% (*i.e.*, content of carbonate equivalent to Pot No. 1).

Pot No. 4 contained prepared soil + magnesium carbonate to bring magnesium carbonate content up to 0.67% + calcium carbonate to bring total carbonates up to equivalent of 14.9% calcium carbonate.

The late planting of these plants again prevented satisfactory growth being made before the close of the season and although all the plants looked very unhealthy—the foliage having a purplish

tint and the leaflets being curled back towards their under surfaces, none of them showed any symptoms of chlorosis, and it was decided to repeat the experiment in 1922, which latter experiment is described below.

1922 EXPERIMENTS.

During this season, in addition to repeating the experiment described above, an experiment was carried out to ascertain whether the addition of progressive amounts of calcium carbonate to the potting soil would render plants grown in the soils more chlorotic. For purposes of comparison, plants were also grown in samples of the garden soil. The soils used in this experiment were the same as were used in the experiments in 1921. They had been turned out of the pots after the completion of the 1921 experiments and kept in a dry state under cover during the winter.

The plants used in both experiments were tomato plants—variety, Kondine Red—two per pot being planted.

They were transferred to the pots on May 22nd, and received normal watering during the period of the experiments.

The condition of the plants in the two experiments on certain dates is given below.

EXPERIMENT WITH MAGNESIUM CARBONATE.

Date of Observation.	Pot No. 1.	Pot No. 2.	Pot No. 3.	Pot. No. 4
June 30th ..	Colour of foliage normal. Growth only poor.	Colour of foliage normal. Only one plant making good growth.	Colour of foliage normal, being similar to No. 2.	Foliage slightly paler than in other pots.
July 11th ..	Ditto.	Ditto.	Ditto.	Foliage distinctly chlorotic.
Aug. 1st ..	Ditto.	Foliage slightly pale. Lower leaves of plants dying.	Foliage slightly pale.	Ditto. Lower leaves dying.
Aug. 12th.. ..	Ditto.	Foliage was slightly chlorotic and plants were unhealthy.	One plant fairly normal. Foliage of o'her slightly chlorotic.	Plants chlorotic.
Aug. 25th.. ..	Foliage slightly pale and plants unhealthy.	Similar to plants in Pot No. 1.	Similar to Plants in Pot No. 1.	Plants chlorotic and condition very poor.

EXPERIMENT WITH POTTING SOIL.

Date of Observation.	Potting Soil Untreated.	Potting Soil + 5% CaCO_3	Potting Soil + 10% CaCO_3	Garden Soil Untreated
June 30th ..	Foliage slightly paler than normal. Growth fairly good.	Similar untreated.	Similar untreated.	Foliage all chlorotic and lower leaves dying off. Plants stunted.
July 11th ..	Foliage slightly chlorotic.	Foliage slightly chlorotic.	Foliage slightly chlorotic.	Ditto.
July 17th ..	Foliage slightly chlorotic. Growth fairly good.	Foliage more chlorotic than untreated soil.	Foliage more chlorotic than 5% treatment but less than in garden soil.	All plants chlorotic and lower leaves dying off. Growth very poor.
Aug. 12th ..	Plants chlorotic.	Plants more chlorotic than untreated.	Plants slightly more chlorotic than 5% treatment.	Plants very markedly chlorotic and growth very poor.
Aug. 25th ..	Ditto. Growth poor.	Ditto.	Plants very markedly chlorotic.	Ditto.

DISCUSSION OF RESULTS.

Soil Data.

From the data given in Table I it will be seen that the percentages of magnesium oxide (MgO) and calcium oxide (CaO) are high and that whilst in the potting soil the ratio $\frac{\text{MgO}}{\text{CaO}}$ is greater than unity the ratio $\frac{\text{MgO}}{\text{CaO}}$ is less than unity in the garden soil. Further, the amounts of calcium and magnesium compounds present are greater in the garden soil than in the potting soil.

The pH values show that both soils are practically neutral in reaction, which is rather surprising in the case of the garden soil, in view of the large percentage of carbonates present in this soil.

1920 Experiments.

- 1.—Mustard plants did not develop chlorosis in either soil.
- 2.—Where tomato plants were planted late in the season no chlorosis was observed on the plants growing in the potting soil, whilst those growing in the garden soil were not badly affected.
- 3.—Previous sterilisation of the garden soil did not appear to affect the amount of chlorosis developed on tomato plants, although the growth of the plants was improved by the treatment.

1921 Experiments.**Series I.**

1.—Spraying the foliage of tomato plants with ferrous sulphate solutions of strengths between 1.0% and 0.1% produced very serious injury to the foliage, the plants being practically killed after three to five applications over a period of 10 to 14 days.

2.—Tomato plants, planted in May, made very poor growth in both the garden soil and the potting soil. The leaflets of the plants were very small and in both soils the plants were chlorotic. The chlorosis developed in the plants grown in the garden soil was much more severe than that in the plants grown in the potting soil.

3.—Towards the end of July, and during August, the new foliage produced by the plants in the potting soil was much less chlorotic than that produced before that time.

4.—Plants grown in Research Station potting soil, containing 14.9% of calcium carbonate, were slightly chlorotic—much less so than those grown in the potting soil or garden soil, whilst those grown in the Research Station potting soil containing 0.8% of calcium carbonate, did not develop any visible signs of chlorosis.

Series II.

1.—Here also where plants were planted late in the season no chlorosis was developed, whilst where planting was carried out in these soils early in the season in 1922, chlorosis was developed.

1922 Experiments.**(a) Experiment with Research Station Potting Soil.**

1.—Where 0.8% of calcium carbonate was added to the soil the foliage was slightly paler than normal towards the end of August. Plants grown in this soil under the same conditions of experiment in 1921 did not develop chlorosis throughout the experiment.

2.—Plants grown in the soils to which 0.8% magnesium carbonate and 0.67% magnesium carbonate respectively had been added developed slight chlorosis, and the older foliage died off prematurely.

Where 0.67% of magnesium carbonate + calcium carbonate to bring total carbonates in the soil up to 14.9% was added to the soil, the plants made very bad growth and were highly chlorotic.

(b) Experiment on Effect of Adding Calcium Carbonate to The Potting Soil.

Plants grown in samples of the potting soil, to which 5% and 10% of calcium carbonate respectively had been added, developed chlorosis to a greater extent than those grown in the untreated potting soil. Those grown in the soil containing 10% calcium carbonate were slightly more chlorotic than those grown in that containing 5% of that substance.

SUMMARY OF RESULTS.

The chief points brought out by the experiments described are as follows :—

1.—The soils contain large supplies of compounds of magnesium and calcium, the amounts of each being greater in the garden soil than in the potting soil. The percentage of total carbonates present in the garden soil is high.

2.—Plants became more chlorotic when grown in the garden soil than in the potting soil.

3.—Plants were more chlorotic when grown in samples of potting soil, to which amounts of calcium carbonate had been added, than were those grown in untreated potting soil.

4.—When samples of Research Station potting soil were mixed with certain quantities of magnesium carbonate and calcium carbonate and tomato plants grown in them, the plants developed chlorosis.

5.—There were three cases in which it was observed that plants growing in autumn did not develop chlorosis to the same extent as when growing in summer. A similar observation is recorded by Sachs.*

6.—Spraying with ferrous sulphate solutions of concentrations from 1.0% to 0.1% caused serious injury to the foliage of tomato plants in all cases.

CONCLUSIONS.

1.—Chlorosis of plants grown in these soils is associated with high contents of calcium and magnesium compounds in the soils and is probably caused by the action of these compounds in the soils.

2.—The addition of calcium carbonate to the potting soil results in the plants growing in it exhibiting more pronounced symptoms of chlorosis.

3.—Chlorosis of plants grown in these soils is not associated with a highly alkaline reaction of the soils, as shown by pH determinations.

4.—The addition of certain quantities of calcium carbonate or of magnesium carbonate to a soil in which plants do not normally develop chlorosis may cause plants grown in it to become chlorotic.

5.—Plants become chlorotic more readily under summer conditions than under autumn conditions.

* 1888. Arb. Bot. Inst., Würzburg, Bd. 3, Heft 4, p. 433—458.

POT EXPERIMENTS ON THE MANURING OF FRUIT TREES.

(T. Wallace.)

During the season of 1922, the experiments with apple trees—Cox Orange Pippin—and strawberry plants—Royal Sovereign—which were commenced in the spring of 1921, were continued, and further experiments on the same lines were commenced on gooseberry bushes—King of Trumps—black currant bushes—Seabrook's Black—and strawberry plants—Leader.

The experiment with strawberry plants—Leader—was discontinued during July as it was evident that many of the pots used were unsatisfactory.

The observations made up to the time of discontinuing the experiment served to confirm those made in 1921 on the Royal Sovereign plants. A further experiment with Royal Sovereign has been commenced this autumn to replace the experiment with Leader.

The following report on the observations made on the apple trees, gooseberry and currant bushes, and strawberry plants, is only to be regarded as a progress report indicating in rather a general way the more important features of the observations which have been made.

The procedure followed during the season was as described in the Annual Report for 1921.

EXPERIMENT ON APPLE TREES.

In general, it may be said that none of the trees in any of the series have made satisfactory growth. This condition may be due in part to the very trying nature of the season— the weather during May was abnormally hot and dry, whilst from June onwards it was generally cold and wet—but it is felt that for the greater part the rigorous conditions to which the trees are exposed may be the chief cause and it is proposed to carry out a few experiments to attempt to improve the conditions of experiment.

Data were obtained during the season on the following points :—

1. Bud break and bud characters.
2. Opening of blossom and blossom counts.
3. Foliage— Coming into leaf.
Amounts of foliage.
Leaf types and characters.
Leaf fall.

4. Condition of barks.
5. Fruit—Set.
Dropping during season.
Yields.
Characters of fruits and their pips.
6. Shoot growth.
7. Root systems.
8. Weight increases.
9. Casualties.

The numbers of fruits obtained from the trees under-going the various treatments were too small to provide material for analytical work and thus only a few characters of these, such as can be determined by observation, taste and smell were noted. Some of the points observed, however, appear to be very significant.

At the end of the season all the original trees of the experiment were living.

The more important results obtained by the different treatments may be summarised as follows :

SUMMARY OF OBSERVATIONS MADE.

Series A.—Trees receiving a complete nutrient solution.

The flower buds were plump and developed vigorously after growth commenced in the spring. The foliage was normal in appearance during the early part of the season, but suffered badly from leaf scorch from about the middle of June and by August 12th most of the older foliage had fallen. All the trees were defoliated by November 23rd. No fruit was obtained from these trees as only one tree set two fruits and these dropped during July.

The shoot growth made was better than in any other series.

The root systems were not large but were equal in size to those of any other series. They showed recent growth of both coarse extension roots and fine fibre.

The total increase in weight of the trees of this series is second to those of "omitting calcium" treatment.

Series B.—Trees receiving a complete nutrient solution + sodium sulphate.

The results obtained in this series were similar in practically every respect to those in Series A.

Some fruit was obtained and they showed the characteristic flavour, colour of flesh, etc., of the variety. The pips of the apples were small but plump.

The series comes third for both the length of shoot growth and weight increase made during the season.

Series C.—Nitrogen omitted from the nutrient solution.

The blossom buds were very small and the flowers opened about seven days after those of Series A.

The leaves were small and of a pale yellowish-green colour, and showed reddish tints in the beginning and towards the end of the growing season. Leaf scorch was almost entirely absent from this series.

Defoliation was hastened by this treatment, all the trees being defoliated by October 31st.

There was a heavy set of fruit, the fruits being small and of a vivid scarlet colour, with rather a lack of polish. The flesh was hard. The characteristic aroma of the variety was distinctly lacking from the fruits and a high content of acid and tannin was suggested by their taste.

The barks of the trees were lighter brown in colour than those of Series A.

Shoot development was smaller than in any other series.

The roots were small and practically the whole of the recent growth made consisted of fine fibre.

The series stands sixth for weight increase.

Series D.—Potash omitted from the nutrient solution.

The blossom buds were slightly smaller than in Series A and the flowers were a day or two behind those of the trees in that series in opening.

The leaves were slightly smaller than in Series A and the colour was generally darker than the normal green.

Leaf scorch was present as early as May 2nd and was very severe throughout the season. The trees in Series B were the only others to develop leaf scorch to such an extent as in this series. Practically the whole of the old foliage fell by August, but new tip foliage was retained until November 23rd, on which date the trees were all defoliated.

Six fruits were obtained from the trees of this series and of these four failed to develop and were without pips. The remaining two were not so fully flavoured as those obtained in Series

B. and they contained only a few pips of a very dwarfed and malformed character.

The root-systems were very small, being similar in size to those in Series C, and lacked fine fibre.

The series is fifth among the others for both length of shoot growth and for weight increase during the season.

Series E.—Phosphoric Acid omitted from the nutrient solution.

The blossom buds in this series were small, being slightly larger than those in Series C and H, and the flowers were a day or so behind those in Series D in opening.

Only tip foliage was carried during the season, the buds along the shoots failing to break in spring. The leaves were normal in size and did not suffer from leaf scorch so badly as in Series A. The leaves were rather pale green in colour during the early part of the season and by August 26th they had developed a characteristic bronzing.

Defoliation was hastened, all the trees being defoliated by September 4th.

Two fruits were obtained. They were normal in size and appearance, but had rather a "musty" smell and flavour and they did not keep well.

Shoot growth was similar to that made in Series C.

The roots though comparing favourably in size with those in Series D, had made scarcely any new growth and were yellow in colour.

The trees lost in weight during the season.

Series F.—Calcium omitted from the nutrient solution.

The blossom buds were similar to those in Series A and the flowers opened at the same time as those of the latter series.

The foliage throughout the season was plentiful, the leaves being large and their colour fairly normal. The amount of leaf scorch present was similar to that in Series A. During August and September the trees retained more foliage than in any other series and continued to make vigorous shoot growth later than in any series. During the autumn many of the leaves showed brilliant orange coloured tints.

The trees were all defoliated on November 23rd.

Although the trees of this series blossomed very heavily there was no set of fruit.

Shoot growth was second to that in Series A.

The root systems were similar in size and character to those in Series A.

The weight increase of the trees in this series was greater than in any other series.

Series G.—Magnesium omitted from the nutrient solution.

The blossom buds were similar in appearance to those in Series D and the flowers opened at the same time as in this latter series.

The amount of foliage was similar to that in Series A. The leaves were of normal size, but were rather pale in colour. During the season some curious colour effects were developed on the leaves, among which were characteristic orange-red tints and brown patches of dead tissue in the centres of many of the leaves. The amount of leaf scorch present was similar to that in Series F.

Defoliation was hastened by this treatment, all the trees being practically defoliated on November 7th.

One fruit set but fell prematurely. Both shoot growth and weight increase in this series came fourth among the series.

The root systems were similar to those in Series A.

Series H.—Trees receiving rain water only.

The blossom buds were similar in size to those in Series C and the flowers opened at the same time as those of this latter series.

The foliage was on the whole rather better than in Series C and the leaves were slightly larger and of a redder tint than in this series. There was no leaf scorch present during the season.

All the trees were defoliated on October 24th, whilst those in Series C were not completely defoliated until October 31st.

The colour of the barks of these trees was brown as in Series C.

The fruits obtained from these trees were larger than from those in Series C but were similar in appearance in other respects.

The flesh of the fruits was very hard and woody and had very little taste. The little flavour present was typically that of the variety.

The pips were very large and plentiful.

Shoot growth was similar to that in Series C, being very poor.

The root systems were the poorest of all the series, the only recent growth being fine fibre. The series was seventh in order of weight increase.

EXPERIMENT ON GOOSEBERRY BUSHES.

The pots used in this experiment are 10in. in diameter and have been treated in a similar manner to those used in the experiment on apple trees.

The bushes were planted on March 9th, 1922, and previous to planting their roots were pruned.

The shoots were pruned after planting.

All the blossom produced during the season was removed to prevent fruiting.

Three bushes per series were lifted on December 20th for root examination.

Data were obtained on the following points :—

1. Foliage;—Coming into leaf
Amounts of foliage.
Leaf types and characters.
Leaf fall.
2. Shoot growth.
3. Buds—Condition of buds at end of season.
1. Root systems.
5. Weight increases.
6. Casualties.
7. Effect of non-leaching of the sand in some of the pots.

SUMMARY OF OBSERVATIONS MADE.

Three of the items of the above list may be disposed of briefly before going into the various other points which require more detailed treatment, viz.:

- (a) Coming into leaf.
- (b) Casualties.
- (c) Effect of non-leaching of the sand in the pots.

(a) Coming into leaf—As all the plants had considerable reserves of food, the time of coming into leaf was in great part independent of the treatments given and thus the differences observed between the plants of the different series were insignificant.

(b) There were no casualties during the season.

(c) The effect of non-leaching of the sand in the pots produced similar results in all series. Bushes in unleached sand retained their leaves longer than those in leached sand receiving the same

nutrient solution. The treatment tended to suppress the development of the natural autumn tints and to replace these latter by a brown marginal leaf scorch. Leaf scorch was developed very severely in all series excepting Series C and H. This latter result is similar to that obtained by non-leaching of strawberry plants in 1921.

Series A.—Bushes receiving a complete nutrient solution.

The foliage was well developed and plentiful. The leaves were large and of a normal green colour. Reddish yellow autumn tints were developed in late September and defoliation took place in November. The bushes were all defoliated on November 23rd.

The shoot growth was very good, being the best of all the series. The buds formed were plump.

The root systems were excellent, being large and containing plenty of coarse fibre and fine fibre.

The weight increase was largest of all the series.

Series B.—Bushes receiving a complete nutrient solution + sodium sulphate.

The foliage was similar to Series A in amount and colour, though the autumn tints produced were rather more red than in the latter series. All the trees were defoliated on November 23rd.

The amount of shoot growth was fourth and the weight increase was third among the series.

The buds formed were similar to those in Series A.

The root systems were practically identical in size and character to those of Series A.

Series C.—Nitrogen omitted from the nutrient solution.

The amount of foliage was small and there was much bare wood. From the beginning of June, the leaves were small and pale green in colour. Reddish tints were developed about the middle of June and the leaves remained reddish yellow from that time until defoliation took place. Defoliation was hastened, all the bushes being defoliated on October 31st.

Shoot growth was very poor—the series standing seventh—and the shoots were very thin. The buds formed were very small and appeared to be starved.

The root systems were small. They lacked the coarser extension growth and consisted chiefly of fine fibre.

The series was seventh for weight increase.

Series D.—Potash omitted from the nutrient solution.

The amount of foliage throughout the season was plentiful. The leaves were smaller and darker green in colour than in Series A.

The earliest autumn tints to develop were yellow and it was not until very late in the season that any red tints appeared.

Marginal leaf scorch was present on many of the bushes during the autumn. The period of defoliation was similar to Series A, all the bushes being defoliated on November 23rd.

The series was fifth for shoot growth, but fourth for weight increase.

The condition of the buds was similar to those in Series A.

The root systems were similar to those in Series A in size but they lacked fine fibre.

Series E.—Phosphoric Acid omitted from the nutrient solution.

The condition of the foliage was similar to that in Series A during the beginning of the season. The leaves were of normal size, but by July 18th many of them were showing marked purple tints. This purpling developed rapidly and was followed by defoliation. Defoliation was hastened. It commenced in early August and was complete by November 7th.

The shoots developed rapidly in length during the early part of the season, but they were very thin.

The series was third in length of shoot growth but only fifth in weight increase. The buds formed were small, but were larger than in Series C and H.

The root systems were similar in size to those in Series F, being much smaller than in Series B. They lacked fine fibre.

Series F.—Calcium omitted from the nutrient solution.

The foliage was generally similar to that in Series A. The leaves were of normal size and colour. They remained green longer than in any other series. Deep red autumn tints were developed. All the bushes were defoliated on November 23rd.

The series was only sixth for both length of shoots made and weight increase.

The buds formed were similar to those in Series A.

The root systems were similar in size and character to those in Series E.

Series G.—Magnesium omitted from the nutrient solution.

The amount of foliage was similar to that in Series A. The leaves were of normal size and became pale green in colour about the middle of July. Towards the end of July they developed broad red bands around their margins, which were characteristic of this series.

Defoliation commenced earlier than in Series A, although the bushes were not completely defoliated until November 23rd.

Shoot growth was second among the series as also was weight increase.

The buds formed were plump and similar to those in Series A.

The root systems were practically identical in size and appearance to those in Series A.

Series H.—Bushes receiving rain water only.

The amount of foliage was small and there was much bare wood.

The leaves were small and early in the season took on a reddish tint. By the middle of July the colour of the leaves was a brilliant red, which colour was retained until defoliation took place. All the bushes were defoliated on October 31st as in Series C.

The buds formed were very small.

The series was eighth for shoot growth and weight increase, the shoots being very thin.

The root systems were similar in size and character to those in series C.

EXPERIMENT ON BLACK CURRANT BUSHES.

The pots are 10in. pots prepared as in the experiments on apple trees and gooseberry bushes.

The bushes were planted on March 14th, 1922, and previous to planting their roots were pruned.

The shoots were pruned after planting.

All blossom produced during the season was removed.

Three bushes per series were lifted on December 20th for root examination.

Data were obtained on the following points.

1. Foliage;—Coming into leaf.

Amounts of foliage.

Leaf types and characters.

Leaf fall.

2. Shoot growth.
3. Buds—Condition of buds at end of season.
4. Root systems.
5. Weight increases.
6. Casualties.
7. Effect of non-leaching of the sand in some of the pots.

SUMMARY OF OBSERVATION MADE.

The three items

(a) Coming into leaf

(b) Casualties

(c) Effect of non-leaching of the sand in the pots

may be treated as in the experiment on gooseberry bushes.

Here again the coming into leaf was mainly dependent on the food reserves in the bushes.

There were no casualties during the season.

The results obtained by the non-leaching treatment were similar in character to those obtained by this treatment in the experiment on gooseberries.

Series A.—Bushes receiving a complete nutrient solution.

The foliage was well developed and plentiful. The leaves were of normal size and colour. They developed reddish yellow tints during the beginning of September and about 50% of the leaves had fallen by October 31st; all the bushes were defoliated by November 15th.

The series was third for length of shoots and second for weight increase.

The buds at the end of the season were large and plump.

The root systems were large and there was plenty of both coarse and fibrous material.

Series B.—Bushes receiving a complete nutrient solution + sodium sulphate.

The foliage was similar to that in Series A in amount and in size and colour of the leaves. The autumn tints developed were of a redder shade than in Series A.

Defoliation took place over practically the same period as in Series A. All the bushes were defoliated by November 15th, although on November 7th the bushes were retaining more foliage than in Series A.

The series was only fifth both for length of shoots and weight increase.

The condition of the buds and the size and appearance of the root systems were similar to Series A.

Series C.—Nitrogen omitted from the nutrient solution.

The foliage in this series was very thin and there was much bare wood on all the bushes. The leaves were small and yellowish green in colour. Red tints were developed about July 28th and these became very pronounced during August. Defoliation was hastened by this treatment. The foliage was very thin on September 25th, and all the bushes were practically defoliated on October 31st.

The series was eighth for both shoot growth and weight increase. The shoots were very thin.

The buds were very small and starved looking.

The root systems were small and similar in size to those in Series H. They were dark brown in colour and the only recent growth to be seen was of fine fibre.

Series D.—Potash omitted from the nutrient solution.

The foliage during the early part of the season was fairly thin and there was a fair amount of bare wood. The leaves were smaller and of a darker green colour than in Series A.

The tints developed in autumn were almost entirely yellow in colour and most of the leaves at this period showed a tendency to curl back towards their under surfaces and to develop leaf scorch. Defoliation took place as in Series B.

The series was sixth for shoot growth and fourth for weight increase.

The buds looked even more plump than in Series A and the root systems were similar in size and character to those of that series.

Series E.—Phosphoric Acid omitted from the nutrient solution.

The amount of foliage and size and appearance of the leaves were as in Series A until the end of July when the leaves developed a brownish purple tint. This tinting developed rapidly during August and purple coloured spots were observed on the leaves from September 4th. The older leaves began to fall about the end of August and by October 10th the foliage was very thin. All the bushes were practically defoliated on October 31st.

The series was fourth in length of shoot growth but the shoots made were very thin, whilst for weight increase the series was only sixth.

The buds formed were small, being larger than in Series C and H, but much behind those of the other series.

The root systems were slightly larger than in Series C and H, but much behind those of Series A, etc.

Series F.—Calcium omitted from the nutrient solution.

The foliage was normal in amount and the leaves were similar to those in Series A in size and colour. The tints developed in Autumn were of a very deep red colour, though not so deep as in Series G.

All the bushes were defoliated on November 15th as in Series A, but during the last few days of October the foliage of the plants was much fresher than in any other series.

The series was second for length of shoots and third for weight increase.

The buds were very plump, being similar to those in Series D.

The root systems were similar to those in Series A.

Series G.—Magnesium omitted from the nutrient solution.

The amount of foliage was normal. The leaves were similar in size to those of Series A, but the colour was not good, being paler than normal from the beginning of July. During the beginning of August the leaves developed red tints and by the third week in September these tints had changed to deep purple, which colour was quite characteristic for the series. The leaves after developing the purple tints showed much curling towards their under surfaces, the curling being more pronounced than in Series D.

All the bushes were defoliated on November 15th, the period of defoliation being practically identical with that of Series A.

The series was first for both shoot growth and weight increase.

The buds were very plump, being similar to those in Series D.

The root systems were as in Series A.

Series H.—Bushes receiving rain water only.

The amount of foliage was small, being similar in amount to that in Series C. There was much bare wood from the beginning of the season. The leaves were small and pale green in colour. They soon developed reddish-yellow tints and by July 1st they showed much reddening. The tints were

redder than in Series C. Some of the leaves began to fall in early August and by September 25th the foliage was very thin. Defoliation was hastened, all the bushes being defoliated on October 31st.

The series was seventh for both shoot growth and weight increase. The shoots were very thin and the buds were very small.

The root systems were small and similar to those in Series C, showing growth of fibre but lack of coarse material. They were dark brown in colour.

EXPERIMENT ON STRAWBERRY PLANTS—ROYAL SOVEREIGN.

During 1922 the plants in this experiment did not make very vigorous growth. They suffered rather severely from an aphid attack during the early part of the season and from the hot dry weather in May and early June.

All the four plants of Series X, which had survived the non-leaching treatment during 1921, failed to start into growth in the spring.

Data were obtained during the season on the following points :—

1. Nature of spring growth.
2. Opening of blossom.
3. Growth of plants.
4. Foliage—Leaf size and characters.
Autumn changes.
5. Fruit—Crop weights.
6. Casualties.

The only data on the fruits presented below are those on the order of the total weights per series.

SUMMARY OF OBSERVATIONS.

Series A.—Plants receiving a complete nutrient solution.

The plants made vigorous growth in the early spring. The first flower was open on April 22nd. The growth made in this series was better than in any other. The leaf stalks stood erect and the leaves were well developed and of a healthy green colour. The first autumn tints were observed on September 25th. They were red and as the season advanced the chief colours developed were red and yellow.

In late autumn the plants appeared fresher than in any other series.

The weight of fruit borne by these plants was much greater than in any series.

All the original plants of the series are living.

Series B.—Plants receiving a complete nutrient solution + sodium sulphate.

The early spring growth was similar to that in Series A. The first flower was open on April 22nd as in Series A.

The growth of the plants throughout the season was similar to that in Series A though the plants were rather smaller. The size and colour of the leaves were normal.

Autumn tints were first observed on September 25th. The chief colour developed was red and the tints in this series were on the whole redder than in Series A.

The foliage remained almost as fresh as in Series A during the latter part of the season.

The series was only third for yield of fruit.

Two of the original plants have died.

Series C.—Nitrogen omitted from the nutrient solution.

The growth made in the early spring was very weak. The first flower was observed to be open on May 13th—21 days after the first in Series A.

The plants of this series made the poorest growth of any series throughout the season and remained in a dwarfed and obviously weak condition.

The leaves were very small and pale green in colour and as early as May 13th they developed red tints. The tints were very vivid in the autumn and by November 15th practically all the foliage had died down.

The series was seventh in order of fruiting.

Five plants have died in this series, which number is greater than in any other.

Series D.—Potash omitted from the nutrient solution.

The early spring growth was similar to that in Series A, but growth began to fall behind after May 3rd.

The first observation made of a flower being open was on May 3rd, on which date four flowers were open.

The plants in this series fell greatly behind Series A from the

beginning of June. The leaves after this date were small and dark green in colour, whilst the leaf stalks were shorter and thinner than in Series A.

Autumn tints were first observed towards the end of September.

The colours developed in this series were generally dull.

The most prominent colour was yellow and there was a large amount of brown edge scorch present during the autumn.

Occasionally a few red and purple tints were observed.

The series was fourth for weight of fruit produced.

One plant has died.

Series E.—Phosphoric Acid omitted from the nutrient solution.

In early spring the growth was only a little ahead of that in Series C and H. The first flower was observed to be open on May 3rd.

The growth during the season was poor, being well behind that in all the series excepting C and H. There was a tendency for the plants in this series to have only single crowns. The leaves were relatively few in number but were fairly normal in size. The colour of the leaves throughout the season showed signs of the plants being unhealthy. Purple tints were developed as early as June 12th and this purple colour of the foliage was characteristic for the series. The purpling was very marked during the autumn. By November 15th most of the foliage had died down.

The series was sixth for fruiting.

Four plants have died.

Series F.—Calcium omitted from the nutrient solution.

The plants were a little behind those in Series A, B and D for spring growth.

The first flower was observed to be open on April 22nd as in Series A, but by May 3rd no further flowers were open.

Growth throughout the season was similar to that in Series B and occasionally the plants carried some very large leaves on long though rather thin leaf stalks.

The leaves were generally similar to those in Series A in size and colour.

Autumn tints of a red colour were first observed on September 18th. Later in the season bright red, yellow and orange colours were developed.

The series was only fifth in order of fruiting.

Two plants have died.

Series G.—Magnesium omitted from the nutrient solution.

The early spring growth made by the plants was similar to that in Series F.

The first flower was open on April 22nd as in Series A.

The growth made during the first half of the season was just a little behind that in Series F, but during the second half the condition of the plants was very poor. The plants lost their upright habit and lay very flat, whilst many of the leaf stalks appeared to be much shorter than normal.

The leaves developed during the early part of the season were normal in size, but during the latter part those produced were often small. The colour of the leaves throughout the season was generally abnormal, sometimes being pale green in colour or exhibiting a mottled effect by developing patches of pale green, whilst occasionally deep purple tints were developed.

Autumn tints were first observed to be developing on September 25th. The earlier tints were purple and later were mostly red or yellow and not of a very brilliant character. In late October some of the tints were developed in patches as on the leaves of the apple trees receiving no magnesium, and as broad bands as on the leaves of the gooseberry bushes undergoing similar treatment.

The series was second for amount of fruit.

Two plants have died.

Series H.—Plants receiving rain water only.

The growth made in the early spring was very weak, the series resembling Series C.

The first flower was open on May 13th as in Series C.

The growth throughout the season was very poor, though the plants always appeared to be slightly better than those in Series C.

The leaves were small and pale green in colour and by May 13th they were showing red tints. The foliage after this date was mostly red, the colour being brighter than in any other series.

Most of the foliage had died down by November 15th.

The series was eighth in order of fruiting.

Only one plant has died from this treatment.

SPRAYING FOR THE CONTROL OF THE LOGAN BEETLE.*(G. S. Peren.)*

In continuation of the work reported in the Annual Reports of the Research Station, Long Ashton for 1920 and 1921, a further trial of arsenate of lead for the control of the logan beetle was carried out this year on lines similar to those of last year's experiment.

Twelve rows of logans were used. Three-quarters of each row was sprayed and the remaining quarter left as control.

The first spraying was applied when approximately one third of the blossom was out, the second, when two-thirds were, out, and the third when the bushes were in full bloom.

The following formula was again used :—

Arsenate of lead	4lbs.
Water	100 galls.
Pressure of application	125lbs. per sq. inch.
First application	May 31st
Second application	June 3rd.
Third application	June 10th.

A fine nozzle was used and the spray driven right into the blossoms.

The results are given in Table I and show that the sprayed berries averaged 2.6% infected, while the unsprayed berries averaged 9.1% infected. The last four pickings may, however, be again disregarded, being light and of little value, thus giving an average of 1.9% infected for the sprayed plot and 9.3% infected for the control.

The percentages infected for the control plot are low when compared with the corresponding figures for 1921 and 1922. This is probably due to two causes— firstly the fact that the major portion of the loganberry plot is receiving a spray which is rapidly exterminating the beetle population and thus diminishing available material for the trials, and secondly to the reported "off" year for logan beetles. In order to test more fully the efficiency of the sprays, the control area for 1921 was this year brought into the sprayed portion and an area which was sprayed last year was this year used as a control. It is of course quite possible that this procedure lowered the figures for this year's control.

The results for the last three years are as follows :—

				<i>Sprayed.</i>	<i>Unsprayed.</i>
				15% infected.	24% infected.
1920	..	..	..	4.9% "	19.8% "
1921	..	..	..	2.6% "	9.1% "
1922	..	..	..

It is reasonable to suppose that the figures for 1920 would have been lower had three applications instead of two been made. From

these figures it appears evident that arsenate of lead is quite reasonably effective in controlling the beetle, and the figures for 1922 strengthen the hope expressed in the previous report that after three years efficient spraying it will be possible to dispense with spraying for one or two years, provided there are no sources of infection near-by.

The results are considered sufficiently good to warrant the commercial application of this treatment, and so, in conjunction with further trials, to establish proofs thoroughly it is proposed to test as deterrents to bees and other pollinating insects various substances which can be mixed with arsenate of lead. A few dead bees have been noticed in the plantation after spraying, but a stock of bees belonging to the Station did not appear to have suffered although only some 200 yards from the plot containing 30 perches of sprayed bushes. The set of the fruit has each year been very satisfactory.

In addition to the work with arsenate of lead a very strong paraffin emulsion as suggested by Theobald was tried the formula being:—

Soap	..	..	..	..	..	..	40 lbs.
Paraffin	..	..	..	..	..	..	8 galls.
Water	..	..	..	..	..	..	100 galls.

This spray was applied in the same way and at the same time as the first application of arsenate of lead.

Very severe scorching of the leaves followed this application in spite of very complete emulsification when mixing the materials, and only a few examinations of fruit were made as this treatment appeared too dangerous to be of use.

The results obtained are given in Table I and the figures show a small measure of control which might have been greater had it been possible to give three applications.

In both 1920 and 1921 there frequently appeared to be a decided difference in size and quality between the apparently uninfected berries of the sprayed and unsprayed plots. This difference was again apparent this year, especially in good ripening weather, and appeared to be due to very minor damage by the larvae of the logan beetle and possibly other insects, which had had a stunting effect on the berries. As it was felt that this should be taken into account, it was decided to make counts of the number of berries infected and otherwise in 2lb. net of fruit from each treatment at each picking, and this was commenced with the third picking on July 19th and continued to the end of the season. The figures obtained were as follows:—

						<i>Sprayed.</i>	<i>Unsprayed.</i>
Average number of berries per 1lb. net of fruit							
fruit	..	..	..	..	..	125.5	133.3

This equals a saving of 7.8 berries per lb. and 17,472 berries per ton. This at 125.5 berries to the pound equals an increase of 139lbs. which at 6d. per lb. would be worth 69s. 6d.

Sixpence per lb. was the average price for the entire crop marketed by the Station this year.

If these figures be applied to a crop of $2\frac{1}{2}$ tons per acre, the increase gross profits equals £8 13s. 9d. This presupposes a similar price for both sprayed and unsprayed fruit, whereas the former when at their best would probably make a slightly better price, especially if the distance to market were considerable.

The cost of spraying must naturally vary with the type of spraying machine used, the proximity of the water supply, freedom from breakdown, etc. At this Station it is estimated that the cost per acre per spraying works out as follows —

	£	s.	d.
Two men at 32/- per week of $5\frac{1}{2}$ days, for one day ..	0	11	8
One carter at 36/- ditto, ditto	0	6	$6\frac{1}{2}$
One horse at 7/6 per day, for one day	0	7	6
32lbs. of arsenate of lead at 1/2 per lb.	1	17	4
	<hr/>		
	£3	3	$0\frac{1}{2}$

The estimate would not of course hold for all districts, but even if the round sum of £10 10s. per acre for three sprayings be taken as a safe covering figure, the deficit after subtracting £8 13s. 9d., the increased gross profit is only 36s. 3d. per acre. It should be remembered, however, that this year the berries in the unsprayed plot were only 9.1% infected. It appears reasonable to assume that the spraying would have shown a profit last year when the unsprayed averaged 19.8% infected as opposed to 4.9% infected in the sprayed.

In order to find out both the extent to which the sprayings will pay for themselves in the year of their application and also the profit on the complete cycle of operations, it is intended to keep accurate crop records from the commencement of reducing a badly infected plantation to some 2% infected, which is probably the limit of freedom obtainable, to the end of the period following this reduction, during which it will be unnecessary to spray.

CONCLUSIONS.

1. Arsenate of Lead appears to control the Logan Beetle effectively if applied when the blossoms are one-third, two-thirds and fully open.
2. The results warrant the commercial application of the treatment, especially if a deterrent to bees can be found which will mix with the Arsenate of Lead.
3. The first spraying, and possibly the second, should pay for them-

TABLE I.

Date of Picking.	Sprayed with Arsenate of Lead.			Sprayed with Paraffin Emulsion.				Unsprayed.		
	No. of Berries Examined.	Infected.		No. of Berries Examined.	Number.	Infected.	Percentage.	No. of Berries Examined.	Number.	Percentage.
		Number.	Percentage.							
July 13	251	6	2.4	233	11		4.7	259	28	10.8
" 17	216	2	0.9					193	7	3.6
" 19	230	0	0.0					246	24	9.7
" 21	233	10	4.3	295	21		7.1	234	24	10.2
" 25	207	1	0.5					217	26	12.0
" 27	214	3	1.4	263	18		6.8	235	24	10.2
" 31	206	5	2.4					229	20	8.7
Aug. 4	268	3	1.1	261	7		2.7	246	12	4.9
" 9	229	4	1.7					262	8	3.0
" 11	275	11	4.0					305	29	9.5
Totals	2329	45	1.9	1052	57		5.4	2426	202	8.3
Aug. 13	286	9	3.1					304	29	9.5
" 15	316	18	5.5					352	42	11.9
" 18	159	9	5.7					163	18	11.0
" 21	140	4	2.9					139	17	12.0
G. Totals	3230	85	2.6	1052	57		5.4	3384	308	9.1

selves in the year of their application. The third spraying will probably show a slight loss, but it is hoped that it will prove possible to dispense with spraying for two years if the infection, after the third spraying, is only in the neighbourhood of 2%, in which case the complete cycle of operations should show considerable profit.

4. An 8% Paraffin Emulsion, while showing some measure of control, may cause severe scorching of the foliage and therefore cannot be recommended.

CANKER CONTROL TRIALS.

(S. P. Wiltshire.)

Further spraying trials were undertaken during the season 1921-22 on the Kingston Black \times Medaille d'Or seedlings in continuation of the experiments of previous years. Burgundy mixture (4:5:40) was used: 100 shoots were sprayed and 100 were protected by paper wrappers during the spraying to serve as controls. The spraying was carried out on 29th March, 1922, during fine weather, but subsequent falls of heavy snow prevented the removal of the wrappers for 3 or 4 days.

Counts were made in August, 1922, but only a total of 4 canker infections were found, all of them on control shoots. This very small percentage of infection was very disappointing and rendered the experiment valueless.

A small scale autumn spraying was carried out on eight trees of King of the Pippins variety. The object of this spraying was to prevent the entrance of the fungus through the leaf scars and was therefore applied as soon as possible after the fall of the leaves, viz., 9th November, 1921. The mixture used was Bordeaux 4 : 4 : 50, four of the trees being sprayed and four left as controls. Counts of the canker infections on 2nd March, 1922, gave for the sprayed plants, 10, 0, 12, 21—a total of 43—whilst the controls gave 21, 1, 12, 22—a total of 47. This result did not substantiate the effect of spraying obtained on the Kingston Black \times Medaille d'Or seedlings in 1920. In this connection, however, it is interesting to remark the opinion expressed by American workers as to the use of autumn spraying against canker in the report of the University of California Experiment Station for 1920-21, p. 55. "Dr. Zeller of the Oregon Station reports that, from present indications, the treatment for Northwestern canker (*Neofabraea malicortis*) Bordeaux 6 : 5 : 20 after the fruit is off and again in three weeks, may also control the European canker (*Nectria galligena*, Bres.)" An autumn spraying against canker may not be so effective as to make it economically sound.

WOUND DRESSINGS.*(S. P. Willshire.)*

In view of the serious nature of those diseases which can enter trees through pruning wounds (more particularly canker and silver leaf) it is obviously of first importance to have a really good dressing which will protect wounds from attacks by parasitic fungi. There are of course a number of preparations in common use at the present day, but astonishingly little accurate work has been done as to the efficacy of these substances. A programme of work, therefore, was drawn up to test some of the well-known substances together with a number of laboratory preparations which appeared to promise good results or might yield information as to the healing of wounds which would be of value in the investigation.

So far only a preliminary trial has been carried out and the results cannot therefore be regarded as other than tentative. As such, however, they may not be without interest.

The first part of the programme was confined solely to the testing of various dressings on wounds. Up to the present time the following commonly used substances have been tried:—gas tar, white lead paint, clay and cow dung, Stockholm tar, grafting wax, a proprietary grafting compound, and the following experimental substances, anti-fouling paint, surgical tape, gum arabic solution with a disinfectant added, creosote (lysol), flexible collodion, boiled linseed oil and chalk, glycerine jelly with a disinfectant, and india rubber solution. The substances were tried on wounds made on the trees in the course of the winter pruning and, except in the case of a small number of trials made at the beginning, were applied immediately after the wound was made. Observations have been confined chiefly to the nature and rate of callus formation, the weathering of the applied dressing, and the ease of application, the experiment not having extended long enough to permit any observations being made as to the protection against fungi afforded by the various preparations.

Comparatively speaking only a few of the substances tried weathered at all well. Clay and cow dung, Stockholm tar, gas tar, the grafting compound, boiled linseed oil and chalk, all weathered more or less badly, and in the case of a number of others there was no trace of the dressing remaining after four months, although in a number of these the substance was absorbed and could therefore not be seen. Anti-fouling paint weathered extremely well, and only showed any sign of cracking when the callus began to form beneath it. White lead paint was good also.

A number of these substances caused a killing back of the tissue of the wounds, notably lysol, gas tar and gum arabic. On the other hand surgical tape and, to a lesser extent, grafting wax and clay and cow dung, encouraged callus formation greatly. The former substance was bound round the branch and kept the surface of the wound moist, weathering much better than clay and cow dung, which otherwise would probably have given just as good results. The general indication afforded by the results to date appears to be that those dressings which aim at producing a disinfecting and protective action retard healing somewhat, whilst those which aim at simply keeping the cut surface moist encourage it.

Another point which was dealt with in these preliminary experiments was whether the time of year had any influence on the rate of healing. For this purpose, dressings were applied in late winter (10th February, 1922), at bud break (29th April, 1922), and at mid-summer (26th July, 1922), Stockholm tar, white lead paint, clay and cow dung, and grafting wax being used on different trees. On June 8th the wounds made on April 29th were found to be much further advanced in healing than those made on February 10th, a somewhat astonishing result.

Various types of cuts were also made to see if the type of wound had any influence on the rate of healing. No noticeable differences were observed, however, although in the case of a piece of cortex lin. square was removed, the top and the sides of the square healed much more rapidly than the bottom.

To achieve the object of this programme will probably be a long and tedious process, the large number of treatments which have to be made necessitating very considerable labour. Whether a dressing which gives a good covering, which does not crack, or severely kill back tissues around the wound is to be desired in all cases is doubtful, but for general purposes it is probably best, whilst for grafting purposes one which encourages rapid callus formation is to be preferred.

STATISTICAL STUDIES ON THE PROPAGATION OF BIG BUD AND REVERSION DISEASE OF BLACK CURRANTS.

(A. H. Lees.)

I.—REVERSION.

In 1920 a small planting of Black Currants was made at Long Ashton in order to provide material for the study of these two diseases and also where possible to obtain crop records. The plantation consists of about 550 plants. The ground was in good

condition at the time of planting and has been well treated manurally, so, though slightly shaded by standard apples, the bushes have made good growth.

The varieties selected follow Hatton's grouping and are respectively Edina, Boskoop Giant, Seabrook's Black, and Baldwin. Of this latter variety two strains A and B are being tried. The young plants were bought as two-year-olds, the Edinas being supplied by a grower and the other varieties by three different first-class nursery firms.

They represent therefore the sort of material that a grower might expect to receive if he went to the best sources. In fact since they were bought by a Research Station openly it might be expected that they would, if anything, be better than the average. It is interesting therefore to note the amount of reversion occurring during the first summer. This figure may be taken to represent accurately the amount of reversion present when the bushes were bought. since, as far as is known, there is no chance of fresh infection showing itself by the end of May. at which time the amount of reversion was marked down.

TABLE I.
REVERTS IN FIRST SUMMER AFTER PLANTING.

Variety.	Reverts.	Total Bushes.	% Reverts.
Edina	23	114	20
Boskoop .. .	5	123	4
Seabrook .. .	9	134	7
Baldwin A. ..	0	57	0
„ B. .. .	4	118	3

The grower's plants were therefore much inferior in this respect to that obtained from nursery firms, though even in these cases three out of four lots contained some reversion. The prospective grower should therefore be very careful in the choice of his source of supply.

REVERSION STATISTICS.

The Edina variety was sufficiently badly infected to show the connection between Big Bud and Reversion, and below are set forth figures for this variety in the same manner as in the Annual Report for 1921 for another plantation. The present plantation, however, has the advantage that the features can be followed out from the start.

In the following tables N signifies freedom from reversion (normal). R reverted, O freedom from, and I presence of Big Bud. FR signifies fractionally revert.

Table II shows the association of O (absence of Big Bud) and of I (presence of Big Bud) with the three classes of reversion.

TABLE II.
var. Edina.

Occurring in Class.	Percentage of 0.		Percentage of 1.	
	1st year.	2nd year.	1st year.	2nd year.
N	85	91	61	33
FR	0	4	0	0
R	14	5	39	67

As in the other plantation the figures for normality and absence of Big Bud (NO) are high and also the figures for reversion and infection with Big Bud (RI). NI is also high especially in the first year showing that the first attack of mite does not usually produce reversion in bushes in the open. The predominant association of N with O and R with I is, however, shown by the fact that the figures for NO are always larger than those for NI and RI than those for RO.

TABLE III.
var. Edina.

Percentage in first year of.	Becoming in second year.		
	N	FR	R
N	95	2	3
FN	0	0	0
R	4	4	92
NO	94	3	3
NI	93	0	7
FRO	0	0	0
FRI	0	0	0
RO	7	0	93
RI	0	12	88

Table III shows in the upper portion the percentages of first year normals, fractionally reverts and reverts that become normal, fractionally revert and revert in the second year.

Normals show a strong tendency to remain normal and reverts revert.

The influence of Big Bud on the subsequent behaviour of the bush as regards reversion is shown in the lower half of the table. Of the normal bushes 3% of NO become revert and 7% of NI. Of the reverts 7% of the RO become normal and 0% of RI, thus showing in both cases a slight tendency of Big Bud to cause reversion and freedom from Big Bud, normality. This plantation thus tends to

confirm the results set out for the other plantation reported on in 1921. On the other hand it may be argued that the tendency for the high figures RI in Table II is due to the possibility that bushes reverted through other causes are more susceptible to Big Bud infection than are normal bushes. The only way to obtain figures on this point is to examine the behaviour of NO and RO bushes in the second year. That is if there is a difference in infectability of normal bushes free from Big Bud and reverted bushes free from Big Bud it ought to be possible to find it. Since these two classes both start free from Big Bud infection, if there is a difference it should be shown in the second year. There were 73 normal non-big budded bushes that remained normal (free from reversion) the second year. Of these 8 or 11% became infected with Big Bud the second year. There were 13 reverted bushes non-big budded that remained reverted the second year. Of these 10 or 77% became big budded as against 11% of the normals. The corresponding figures from the other plantation referred to were 18% normals becoming big budded and 72% reverts becoming big budded, which figures are in fairly close agreement. There would therefore appear to be a bigger tendency for reverted bushes to become attacked with Big Bud than for normal bushes. It does not follow, however, that cause and effect act in this direction only. Evidence has already been cited showing a tendency for infection by Big Bud to cause reversion, and furthermore, if Big Bud did not cause reversion then it should be possible to find highly big budded bushes that were normal. No such bushes have been found so far at Long Ashton nor have they been observed elsewhere by the writer.

II.—BIG BUD.

The total percentages of Big Bud in the four varieties is shown in Table IV for all the varieties.

TABLE IV.

Variety.	Percentage Big Bud during three years.		
	1st year.	2nd year.	3rd year.
Edina	73	21	26
Boskoop	2	1	3
Seabrook	0	0	0
Baldwin A.	0	2	4
„ B.	2	3	8

The drop in attack in the second year was due partly to the fact that all big buds were carefully destroyed at planting time. There was, however, a source of infection left about ten yards beyond the Baldwin B group.

The table appears to show the relatively great susceptibility of Edina, a character that is fairly well known to nursery growers.

The plantation of Edinas, beside furnishing evidence of the association of Reversion with Big Bud, has also supplied statistics showing the natural spread of Big Bud. Table V. shows the numbers of infected and free for the winters of 1920, 1921 and 1922, and also the numbers and percentages of free and infects becoming in the next year free or infected. The figure 0 signifies freedom from, and the figure 1 presence of Big Bud for each of the three years.

TABLE V.
var. Edina.

Constitution.	No.	Constitution.	1920 No.	21. %	1921-22. No.	%
000	20	10	65	78	14	58
100	51	11	18	22	10	42
010	3	00	26	82	71	78
001	6	01	6	18	20	22
110	11					
101	14					
011	3					
111	7					

This variety was obtained from a market grower and showed the very big percentage of 73 of big budded plants. They were, however, planted. Great care was taken to remove all big buds after planting, so that the following year no mite should be present unless they wintered in some unknown position, as for example in the soil or on the bark.

Table V shows the history of these bushes for the three years 1920-22. There were thus 20 bushes that were free all three years, 51 that were infected the first and free the last two years and so on. The right-hand half of the table shows the history of bushes from one year to the next. Of the infects in 1920, 78% were free in 1921, and 22% infected, and of the free in 1920, 82% remained free and 18% became infected. Thus the percentage of infects in the second year from first year infects was almost exactly the same as the

percentage of infects in the second year from first year frees. In other words, it made no difference whether the bush was originally infected or free and the infection clearly came from some source independent of the bush itself.

The figure for this natural increase for the conditions under which the experiment was made was therefore about 20%. The following pair of years 1921-22 showed rather different figures. While the percentage of frees becoming infected was still about 20 (22 actual), the figure for infects remaining infected had gone up to 42. This was because no attempt was made in the winter of 1921 to eliminate Big Bud and consequently there were two sources of infection for infected bushes, one from the bush itself and the other from highly infected bushes outside the plantation. These highly infected bushes were probably responsible for the 20% increase found from 1920-21. Subtracting the "natural increase" of 20% from the total for 1921-22, 22% is obtained for the increase due to Big Bud on the bush. Thus under these conditions and with an initial attack only one fifth of the bushes re-infected themselves.

The susceptibility of the variety Edina appeared to be particularly marked. Between the source of infection were six rows of Baldwin, five of Seabrook's Black and five of Boskoop Giant. Nevertheless re-infection of the Edinas was well marked, while hardly any occurred on the other varieties nearer the source of infection.

EGG-KILLING WASHES.

(A. H. Lees).

Every year the fruit grower is confronted with the necessity of spraying his bushes and trees in order to control insect pests. Many of these insects spend the winter in the egg form on the plants and are thus of particularly easy access at that time of the year. Most of the aphid pests lay winter eggs on the trees, *e.g.*, three kinds of apple aphid, the leaf-curling plum aphid, cherry aphid and the aphid attacking gooseberries and currants. In addition, on the apple, eggs of apple sucker and capsids also occur, while red spider eggs may be found on many fruit trees.

It would be, therefore, clearly advantageous to the grower if some reliable egg-killing wash could be found. At one time the possibility of obtaining a wash that would kill insect eggs was looked upon as almost, if not quite, impossible, in view of the very resistant nature of the chitin which forms the egg shell. Further suspicion was cast upon the idea by the failure of the claims of

certain winter-wash manufacturers for egg-killing properties for fluids which had no such action. Nevertheless, recent work has shown that certain fluids, such as lime-sulphur, have the property of killing certain eggs if applied at certain strengths and at certain times. Field work also has tended in the same direction, in the case of lime-sulphur, cases being fairly frequent where delayed dormant spraying has given a fair control for aphids.

There were, therefore, good reasons for investigating the subject more fully under laboratory conditions and a beginning was made in the winter of 1922. The material selected was the eggs of the permanent apple aphid, *Aphis pomi*, which frequently occur in large numbers on apple twigs. A number of egg-infested maiden plants were potted up and kept under outside conditions. The wood was marked off in lengths of four inches for treatment. Between each treated portion was left a length of one inch, to act as a buffer between treatments. The fluids were painted on with a soft brush, great care being exercised to prevent over-lapping. With some of the very wetting fluids this was not easy. As soon as the fluids were dry the trees were removed outside again. They were thus not kept in the laboratory more than three hours.

SUBSTANCES TESTED.

These consisted of proprietary fluids (A and B), lime sulphur, red oil, paraffin emulsion, mercuric chloride and various mixtures of caustic soda and nicotine. Trials were made from the middle of January to the middle of April. The control portion was left either at the tip or base of the stem.

PROCEDURE.

As soon as hatching showed signs of beginning the potted trees were taken inside and the buffer inches greased to prevent the eggs hatching. The plants were then laid horizontally with sheets of oiled paper close below them. As the aphids hatched in most cases before the buds started there was no green tissue for them to feed on and they fell on to the oiled paper and were caught and counted. After hatching was completed the stems were cut and the total number of eggs computed. The portion of twig was first boiled in caustic soda to remove the egg shells. The solution was then filtered and the residue with eggs washed into a litre of water. After thorough agitation a measured portion of the egg-containing water was removed by a pipette and the eggs counted. The average from six counts were found to give a figure with only a small probable error.

The results of each tree are given below :—

TREE I.—TREATED JANUARY 19TH.

	Lime-Sulphur.				Paraffin Emulsion.		Control.
	1 ln 10	1 ln 12	1 ln 15	1 ln 20	15%	25%	
Eggs hatched	0	3	0	4	4	2	9

These results are so unsatisfactory that they must be neglected.

TREE II.—TREATED FEBRUARY 17TH.

	Lime Sulphur.				" A."	" B."	Red Oil.	Par. Em.	Control.
	1 ln 20	1 ln 15	1 ln 12	1 ln 10			5%	15%	
Eggs hatched	3	12	19	17	5	7	77	60	78
Total Eggs present*	813	1,617	1,320	1,866	1,833	1,443	1,320	1,160	446
% hatched	.37	.74	1.44	.91	.29	.48	5.8	5.2	17.5

* Computed.

This tree showed well-marked influence of the fluids used. All strengths of lime sulphur as well as " A " and " B " gave good control, while red oil and paraffin emulsion gave only a partial control,

TREE III.—TREATED FEBRUARY 23RD.

	Caustic Soda	2%	1%	1%	2%	2%	2%	2%	Control.
	Nicotine	0%	.05%	.1%	.025%	.05%	.1%		
Eggs hatched .. .		43	6	2	6	2	2	17	
Total eggs present*		896	2,000	2,616	1,586	2,050	1,300	820	
% hatched.. ..		4.8	.3	.07	.38	.01	.05	2.07	

* Computed.

In this case the number of eggs hatched in the control is very unsatisfactory, but there is an indication that where nicotine was used the kill was materially increased.

TREE IV.—TREATED APRIL 20TH.

	Mercuric Chloride	1 ln 4000	1 ln 2000	1 ln 1000	1 ln 500	Control.
Eggs hatched		642	534	601	411	520
Total eggs present*		5,514	7,000	6,626	5,480	—
% hatched		11.6	7.5	9.1	7.5	—

* Computed.

The control was accidentally destroyed before the total eggs present could be estimated, but it was evident that mercuric chloride had no egg-killing power.

TREE V.—TREATED MARCH 15TH.

	Control.		Lime-Sulphur.					"A"	"B"	Par. Em. 15%	Red Oil. 5%	Soda	Merc.
			1 in 20	1 in 15	1 in 12	1 in 10	Nico- tine .1%					Chlor. 1/500	
Eggs hatched	23	131	6	4	14	34	18	21	463	211		9	36
Total eggs present*	320	912	967	2,048	3,300	6,168	4,980	5,900	5,132	3,633	1,853	1,720	
% hatched	7.2	14.4	.62	.19	.42	.55	.36	.36	9.2	5.8	.48	2.1	

* Computed.

In this experiment lime-sulphur and "A" and "B" have again given satisfactory control at all strengths used. The results which were only indicated in Tree III for soda and nicotine are shown here more clearly, a good control being obtained for caustic soda 2%, nicotine .1%. Paraffin emulsion, red oil and mercuric chloride were again unsatisfactory.

TREE VI—TREATED APRIL 11TH.

		Lime-Sulphur.				
		Control.	1 in 20	1 in 15	1 in 12	1 in 10
Eggs hatched	500	160	96	40	44	46
Total eggs present*	1,975	8,240	8,400	7,314	4,964	6,675
% hatched	25.3	2.4	1.2	.47	.6	.96

* Computed.

Here again the effect of lime-sulphur is shown as in previous experiments. The variation between the controls is, however, high.

CONCLUSIONS.

It is not possible to draw very decided conclusions from one year's experiments, but there are distinct indications that both lime-sulphur and fluids "A" and "B" have very decided killing properties for eggs of *Aphis pomi*.

Summarising the figures for lime-sulphur the following figures are obtained :—

% Eggs hatched after Lime-Sulphur Treatment at various strengths.

Strengths.	Date of Application.		
	February.	March.	April.
1/20	·37	·62	1·2
1/15	·67	·19	·47
1/12	1·36	·42	·6
1/10	·86	·28	·96
Control	17·5	7·2	25·3
"		2·4	2·4

These figures appear to show that there was no clearly marked difference obtained from the various strengths or times of application. On the whole the March application showed a slight superiority, but the difference is quite small.

Fluids "A" and "B" showed a slight superiority over lime-sulphur. Mercuric chloride was of no appreciable use.

The caustic soda-nicotine trial did not secure a big enough hatch to be reliable, but it indicates that an increase in percentage of both soda and nicotine result in a high killing power.

CIDER-MAKING EXPERIMENTS WITH CULINARY AND DESSERT APPLES.

(B. T. P. Barker and Otto Grove.)

It has been evident during the past few years, from the number of enquiries received by the Institute, that the use of dessert and culinary apples for cider-making is being considered to an increasing extent by fruit-growers in this country, and that information as to their suitability for the purpose and the right lines of procedure is desired. The reasons for this development have been indicated in various articles previously published and need not be recapitulated here: it is sufficient to state that it has arisen in all countries where the production of table apples has reached the point where some form of profitable utilisation of the lower grades of this class of fruit other than for eating purposes has become a definite economic problem. It is not a new proposition, for cider has

been made from such fruit for many years, particularly in North America. In a general way its limitations for the purpose are already familiar to the cider industry and further investigation is hardly needed to establish the point of its inferiority to vintage fruit proper or the directions in which it falls short in vintage quality. At the same time very little in the way of detailed information has been published, and advice is being constantly sought as to methods of use and treatment to give the best results. For that reason, considerable attention has been given at Long Ashton recently to the use of such fruit for cider-making, and the results seem worth putting on record for the benefit of those to whom the subject is relatively new, although as a contribution to knowledge they serve only to confirm what has been learnt by past experience in the industry.

THE COMPOSITION OF THE JUICE OF MARKET VARIETIES OF APPLES.

The Annual Report of the Institute for 1909 contains the results of analyses of the juices of several varieties of table apples, which show that as a class in comparison with vintage fruit, the specific gravity of the juice—and therefore its sugar content—is low and its potential alcoholic strength accordingly low also, the acidity high, “tannin” low, and rate of fermentation high. Colour generally is very pale. These features indicate that cider made exclusively from such fruit will lack body, be markedly acid in flavour, difficult to produce with any considerable degree of natural sweetness, and in some respects deficient in keeping quality. The following table of analyses of the juices of some of the better-known commercial varieties further illustrates these features of composition. It contains the analyses of the juices of the sorts named, in all cases except Bramley's Seedling and Lane's Prince Albert the fruit being of the 1922 crop. The results for the two sorts named were obtained from fruit of the 1921 crop, which for apples generally contained an unusually high percentage of sugar. The amount of sugar is indicated approximately by the specific gravity, 1.050 representing about 10 per cent of sugar and every 4 points difference roughly 1 per cent. The rate of fermentation quoted is the number of points of specific gravity lost on an average in 24 hours when the juice is kept at 25°C. For comparison the composition of a typical vintage variety of high quality, Kingston Black, is also included.

Name of Variety.			Specific Gravity.	Acid %	Tannin %	Rate of Fermentation.
<i>Dessert—</i>						
Allington Pippin	..	..	1·044	·67	·10	13·
Coronation	..	..	1·047	·34	·05	14·
Cox's Orange Pippin	..	..	1·057	·59	·09	6·3
James Grieve	∴	..	1·045	·69	·05	9·
Rival	..	..	1·046	·63	·06	7·
Wealthy	..	..	1·045	·81	·06	8·6
Worcester Pearmain	..	..	1·047	·28	·11	10·
<i>Culinary—</i>						
Bismarck	..	..	1·040	·97	·11	11·
Bramley's Seedling	..	..	1·050	1·01	·14	12·
Grenadier	..	..	1·044	1·09	·08	8·6
Lane's Prince Albert	..	..	1·052	1·06	·10	12·3
Lord Derby	..	..	1·041	·51	·03	12·6
Newton Wonder	..	..	1·042	·57	·09	9·6
Potts' Seedling	..	..	1·042	·66	·06	8·4
Royal Jubilee	..	..	1·047	·52	·08	14·
Warner's King	..	..	1·041	·89	·08	9·3
<i>Vintage—</i>						
Kingston Black	..	..	1·060	·5	·2	3·

Of the varieties included in this table there are only three—Cox's Orange Pippin, Coronation and Worcester Pearmain—which would yield ciders materially different in character from the type commonly produced from the table fruit. The analyses show that the remainder would give ciders deficient in body and colour, relatively coarse in flavour and lacking in fruity character, and with degrees of acidity ranging from moderate briskness (in the case of Lord Derby) to excessive sourness (in the case of Grenadier). The fermentation in nearly every instance would require close attention and be more or less difficult to control. Two of the three exceptions—Coronation and Worcester Pearmain—differ from these only in degree of acidity. Their acid content is so low that they may be grouped definitely with the "sweet" class of apples. Ciders made from them, therefore, will tend to be insipid and lacking in briskness. The third exception—Cox's Orange Pippin—stands quite apart from the rest in type. The sugar content of the juice is up to a very fair vintage standard, the acidity is of the desired standard, and the rate of fermentation is sufficiently low to permit of easy control and the retention of fruity character. The only feature open to serious criticism with this variety is the rather low "tannin" content, which would tend to a low-coloured and rather thin cider. There

is little doubt that a cider of very good quality could be made from apple. Its high value for eating purposes makes it unlikely that this sort would ever reach the cider mill, so in considering the use of table fruit for making cider it may be disregarded.

CIDER-MAKING TRIALS WITH MARKET VARIETIES.

To supplement the laboratory examination of the vintage qualities of apples of this class, cider has been made on a practical scale in the cider-house from some of the varieties mentioned in the above Table which were procurable in sufficient quantity and at an economic price. The number of these tests thus far made is small, but as opportunity occurs it will be increased. In the 1921 season, Bramley's Seedling and Lane's Prince Albert were used: in 1922 those sorts were again tested, with Worcester Pearmain, Warner's King and Newton Wonder in addition. It is still too early to say much of the latter except that they give indication of conforming to the type described in the previous section as characteristic of market fruit. The Worcester Pearmain cider with low acidity already suggests interesting possibilities: being made in October and filtered very early, it is now fit for consumption, although a final opinion on it cannot be given until it has been exposed to summer temperature.

The 1921 ciders from Lane's Prince Albert and Bramley's Seedling ultimately matured to a standard considerably above expectation. The juices in each case fermented very rapidly and were filtered when ten days old to conserve as much as possible natural sweetness to balance the high acidity. In bottle, after one year, that sweetness has still been in a large measure retained and the ciders are quite sound and in good sparkling condition. The Bramley's Seedling sample is the better, being a clean sharp cider, by no means unpleasant in flavour, although much too acid for use alone. Very good blends with low-acid ciders of the sweet and bitter-sweet classes have been made and it has been found possible to use it with completely satisfactory results on the same lines as ultra-acid ciders made from the sharper vintage varieties. For such purposes it does not compare in quality with the best vintage sorts, but it can fairly be placed on a level with a good average second-class variety. The Lane's Prince Albert cider was of a similar character, but slightly inferior. Its inferiority ought probably not to be attributed to the variety, for the conditions under which the cider was made were unavoidably less satisfactory.

CONCLUSIONS.

The conclusions drawn in the preceding sections as to the vintage quality of table varieties of apples will suffice to indicate to the professional cider-maker the manner in which such fruit can be turned to best account by him for cider-making. In his case there is relatively little difficulty, since with all classes of vintage fruit at his command he can readily by judicious blending adjust deficiencies in quality and exercise control over fermentation with his available equipment.

The position is less easy for the market apple grower who desires to convert any surplus of table fruit into cider. For him the problem is how, using such fruit as a basis, to produce a marketable cider. The requirements seem clear. A supply of vintage fruit acidity and fairly high tannin content, i.e., a typical bitter-sweet variety, is needed in sufficient quantity to blend with the table fruit so that the resultant cider shall not possess too much acidity or be too thin in character. The addition of a proportion of vintage fruit will also increase the sugar contents of the freshly pressed juice and lower the rate of fermentation, but unless the proportion added is large it will not help greatly the matter of control of fermentation. Effective control is necessary for the production of cider retaining natural sweetness from juices composed largely of the market fruit element and the only suitable method of securing it which can be recommended at the present time is that of filtration. The high cost of cider filters practically put this method beyond reach of those making small amounts of cider annually and the work needs to be conducted on a commercial scale for a filter to be economically employed.

Those who desire to turn surplus table fruit to profitable account by conversion into cider must therefore be prepared to purchase or grow a proportionate amount of suitable vintage fruit and to cater for an output sufficiently large to justify the provision of an efficient filter. If that is done, they can be reasonably sure of being able to produce a cider of sufficiently good quality to bring a fair return on the outlay.

RASPBERRY NOMENCLATURE.

(*N. H. Grubb* and G. S. Peren.*)

This subject has been approached by the Research Stations of East Malling and Long Ashton, in co-operation, and the following article constitutes a preliminary report on their joint work.

Of the East Malling Fruit Research Station.

The material forming the collection of varieties of raspberries at East Malling was obtained mainly from market growers, while that at Long Ashton was mainly from nurserymen and included many samples of the same variety from different sources. At the same time many well-known raspberry districts were visited from East Malling and notes made regarding the varieties grown and names used. Both Stations have concentrated on the summer red-fruited varieties as being of chief commercial importance.

Since all commercially important British varieties are included in the combined collection, the following joint summary of the relation between varieties and names gives a fairly accurate view of the existing confusion in regard to nomenclature.

Table I shows the number of distinct varieties found to be grown under the various names. it is considered here that any variety constituting 50 per cent. or more of the plants in a plantation may be regarded as grown under the name above.

TABLE I.
NUMBER OF VARIETIES GROWN UNDER EACH NAME.

<i>Number of Varieties.</i>	<i>Name given.</i>
2	Antwerp, Black
8	Antwerp, Red
8	Baumforth's Seedling
3	Carter's Prolific
4	Fastolf
7	Fillbasket
7	Hornet
2	Laxton's Bountiful
3	Norwich Wonder
2	Profusion
2	Pyne's Royal
3	Semper Fidelis
5	Superlative

Under other names, only one variety was found for each ; the most important of these are Bath's Perfection, Devon and Mitchell's Seedling.

It should be noted that still other varieties were often found growing under several of these names ; but being under 50 per cent., were considered as " rogues." In some cases it would be impossible to state the true number of these rogues--such varieties as Hornet (A) and Superlative having frequently very many kinds of rogues mixed with them.

Whilst all the thirteen names given in Table I were applied to more than one variety, in many cases the same variety was found to occur under more than one name. Here again varieties constituting 50 per cent. or more of the plants in a plantation are regarded as grown under the names given.

TABLE II.

VARIETIES GROWN UNDER MORE THAN ONE NAME.

(The variety names here given are those given in "Commercial Varieties of Raspberries at East Malling," Vol. III, No. 1 of the *Journal of Pomology*).

<i>Variety.</i>	<i>Names given.</i>
Bath's Perfection ..	Bath's Perfection, Superlative, Baumforth's Seedling, Hornet, Red Antwerp, Abundance, Marlborough (from U.S.A.). (Of these names Abundance and Marlborough are recognised synonyms for Bath's Perfection).
Baumforth's Seedling B	Baumforth's Seedling, Hornet, Semper Fidelis, Fillbasket, Red Antwerp, Fastolf, Superlative.
Hornet A.	Hornet, Baumforth's Seedling, Norwich Wonder, Superlative.
Red Antwerp B ..	Red Antwerp, Carter's Prolific, Norwich Wonder.
Norwich Wonder ..	Norwich Wonder, Fillbasket, Laxton or "Laxton's Fillbasket."
Black Antwerp A ..	Black Antwerp, Red Antwerp, Late Antwerp.
Red Antwerp A ..	Red Antwerp, Black Antwerp, Early Antwerp.
Red Antwerp F ..	Red Antwerp, Black Antwerp.
Baumforth's Seedling C	Baumforth's Seedling, Hornet.
Hornet B	Hornet, Fastolf.
Mitchell's Seedling ..	Mitchell's Seedling, Profusion.
Red Cross	Red Cross, Royal.
Pyne's Royal	Royal, Red Cross.
Superlative	Superlative, Devon.

Some of these varieties also occurred as "rogues" (less than 50% of the plants), under still other names. In some cases no one variety constituted as much as 50% of the plants; and in one case ten plants were found to include at least four and possibly five varieties.

We thus find that even where a certain name (*e.g.*, "Bath's Perfection"), is applied to only one type, the same varieties may actually be grown under several other names; it seems that nearly all growers of raspberries know what to look for under the name Bath's Perfection, but that they fail to recognise the same variety under another name.

The presence of "rogues" in many samples has already been mentioned. The newer varieties are, of course, usually free from rogues, though even these are sometimes found to include a small percentage of other varieties. Bath's Perfection in particular, is rarely sent out, even under another name, with any appreciable proportion of rogues; the variety (Bath's Perfection) does sometimes occur as a rogue amongst others, but even this is uncommon. Of twenty-one samples received at the two Stations as Bath's

Perfection every one was true to name and free from "rogues." Of other varieties received, from ten or more sources, Superlative was the only one of which as many as 50 per cent. of the samples were true to names and free from "rogues."

From the foregoing data it can be seen that the nomenclature of raspberries is in a state of considerable confusion. Several of the factors responsible may here be mentioned.

Firstly, the growth of seedlings from the seeds of fallen fruits is undoubtedly responsible for the presence of "rogues" in many varieties.

Secondly, where a variety normally produces few canes, the growth with it of "rogues," which normally produce many canes, will naturally tend to suppress the true variety and it is to be expected that any of them which happen to have a commercial value may be propagated and disseminated under the name of the variety among which they occur.

Thirdly, the transference of a name from one variety to another with the dissemination of the wrong variety under the name is undoubtedly another large factor.

Yet another possible cause of the confusion, which many growers believe to be very common, is the production of new forms through "bud sporting" from the roots. Although one or two possible examples of this have been seen at East Malling, we have not yet discovered a case where it has been sufficiently widespread to cause confusion.

CONCLUSION.

The nomenclature of raspberries is in a state of considerable confusion and the greatest possible care should be taken, when obtaining canes for planting, to make sure that the variety is actually the one desired and that it is not mixed with a large proportion of "rogues."

CANKER INFECTION OF APPLE TREES THROUGH SCAB WOUNDS

(S. P. Wallshire.)

In previous papers various ways in which the canker fungus enters the apple tree have been described, and in continuation of this investigation the method by which canker follows scab infection on the stems has been worked out in some detail.

The scab fungus infects the shoots of susceptible varieties of apples during the autumn and winter following their growth, the first infections usually being found before the trees defoliate. In the spring most of the pustules are surrounded by a cork layer and

are subsequently completely excluded from the tree, the only trace of the infection finally being a slight roughness of the bark.

Sometimes, however, this course of events is disturbed. The cortex round the small scab pustule shows signs of blackening and this is accompanied in some cases by a swelling of the bark due to the growth of the tissue beneath the infection. Very early stages in which the discoloration is extremely slight can sometimes be identified. This difference from the normal behaviour is due to the entrance of the canker fungus, *Nectria galligena*, and the latter usually develops rapidly once it has effected an entrance. The canker infected area round the scab pustule is completely killed and blackened, usually about 5mm. in diameter, somewhat sunken and there is no crack in the bark between the healthy and diseased tissue. In the autumn and winter canker infections of scab wounds are most frequently found in this stage. Later well-defined cracks appear at the edge of the infected area and a slight swelling of the adjacent tissue takes place.

If the tree is sufficiently vigorous to form a cork layer round such a scar before the wood has become infected, the canker makes very little progress and the tree makes a good fight against the fungus. Often, however, the whole of the cortex becomes infected and the fungus reaches the woody tissues, the scar then gradually assuming the appearance of the normal canker. It is often difficult to assign any particular method of infection to a mature canker, but sometimes specimens are found in which the concentric cracks in the bark indicate the original point of infection, which point is strongly suggestive of a scab wound. Further young stages of canker infection of scab wounds have been marked on the tree and the development of a canker observed, in a number of instances the shoot above the canker being killed off during the following summer. Fructifications of the fungus are not borne until the canker is well developed, but on keeping young infections in a moist chamber for two or three days a few small conidial pustules generally appear and afford evidence of the presence of the canker fungus.

The occurrence of this type of infection has not been found to be nearly as common as that of the leaf scar infection, but it is probably as prevalent as the infection which takes place through Woolly Aphis galls. In some years when the autumn has been specially damp, the shoots of the previous winter are often found to be killed off in large numbers. Such shoots are usually heavily infected with scab, and although they frequently bear leaf scar infections of the canker fungus, it is probably that canker infections of scab wounds are responsible for a good proportion of the damage.

For full microscopic details regarding this type of infection reference may be made to the paper published in the *Annals of Applied Biology*, Vol. IX., p. 275. Briefly the process is as follows. The spores of the canker fungus find their way by some means or other (possibly being carried by rain, wind or insects) onto the surface of a young scab pustule. There they germinate and the fungus hyphæ produced penetrate the scab pustule, which is confined to the outermost layers of the stem. Under favourable conditions the canker fungus may produce summer spores even at this early stage. It continues to develop and as soon as it has gained a firm hold on the scab pustule it commences to grow out into the apple stem itself, several strands of the fungus pushing their way, chiefly between the cortical cells, in a very characteristic manner. The fungus secrete some product which attacks the tissue of the stem and brings about the death of the cells. The tree usually makes some sort of attempt to stop the progress of the parasite by forming a new bark layer round the infected portion, and there are indications that sometimes it succeeds in doing so. If such a layer becomes mature before the *Nectria* reaches it, then it probably can progress no further unless assisted by a fresh growth of the scab fungus. Unless the new protecting bark layer is formed very rapidly, however, it is useless, for the canker fungus can pass immature layers with ease. Unless stopped by this method the fungus reaches the wood and the formation of the typical canker is only a question of time. The tissues round the infected region behave in the usual way, forming wound wood, the stem swelling up both above and below the cankered spot in the usual fashion.

The important point to the fruit grower is whether anything can be done to stop this method of infection. Of course if it were possible to control the autumn infection of young shoots by the scab fungus the task would be easy, but at present there is no known remedy against this infection. Whether spraying in autumn as soon as the fruit is off the trees would be useful or not has not hitherto been determined.

CIDER-MAKING TRIALS FOR THE SEASON 1921--2.

(Otto Grove.)

The table below gives a list of the apples made into cider during the season, with the chemical composition of the different juices and other particulars. As regards the composition of the juices the most interesting fact was the very high specific gravity. The average specific gravity of all the juices was 1.0601. This is much above the normal, which is about 1.050. This feature must be

attributed to the very dry and hot weather during the summer and autumn, the drought and heat combined causing the fruit to be of small size and its juice relatively concentrated. This was especially marked with apples from the Martock district, some of the Kingston Black samples received from that part being only about half their normal size. As will be seen from the table, specific gravities over 1.070 were not unusual: in one case it was even 1.090. At the same time the yield of juice was in many cases below 150 gallons per ton of apples, whereas the usual average yield is about 165 gallons per ton.

It might be expected that juices with such high specific gravities would yield exceptionally good ciders. This was, however, not the case. The ciders were not above the normal in respect of flavour and aroma. The characteristic flavour of the different varieties was less pronounced than usual, and the general opinion at the Annual Tasting Day was that of too much "sameness." Some of the Kingston Black ciders had a rather peculiar flavour, difficult to define, but giving one the impression that some of the flavouring bodies were present in too large quantities and affecting the palate too much.

Two table varieties were tried for cider for the first time, namely Bramley's Seedling and Lane's Prince Albert. They both fermented very rapidly and had to be filtered already ten days after they were made, so as to retain some sugar in the cider to balance the high acidity. The Bramley's Seedling gave the best result and produced a nice clean sharp cider, much too acid in flavour to be used alone but making a very good blend with ciders of the bitter-sweet class. The cider made from Lane's Prince Albert had similar character but was not quite so good. They have both kept well and are in good condition after one year in bottle.

There were no cases of sickness during the summer, but some samples developed ropiness. From one of the samples a new micro-organism producing ropiness was isolated. This organism is under investigation at the present moment, and it is hoped that further light may be thrown upon the causes of this very troublesome disorder.

Among the varieties of the sharp class used in the trials Nos. 1 and 4 were tested for the first time; they were both fairly good ciders but did not show special merit. Most of the others have been tested several times and were not above the average. Backwell Red, Foxwhelp, Teign Harvey, Frederick and Red Soldier were the best. Of the Kingston Black ciders Nos. 18—22 were rather affected by the peculiar flavour mentioned above. Of the sweet

No.	Name of Variety.	District where Grown.	Date of Making.	Specific Gravity of Fresh Juice.	Malic Acid per cent.	Tannin per cent.	Rate of fermentation at 25°C.	Date of Filtering	Specific Gravity
APPLES—									
SHARP VARIETIES—									
1	Hampshire Blossom	.. Hereford ..	Nov. 16th	1-062	.73	.19	8-4	4/1/22	1-014
2	Butter Box ..	.. Newton Abbot ..	Oct. 20th	1-055	.72	.12	4-7	13/1/22	1-016
3	Crimson King	.. Martock, Som.	Nov. 22nd	1-071	.88	.15	11-0	3/1/22	1-017
4	Siberian Bittersweet	.. Hereford ..	Nov. 16th	1-057	.70	.17	6-4	4/1/22	1-018
5	Bickington Grey	.. Newton Abbot ..	Oct. 20th	1-053	.87	.14	4-5	13/1/22	1-021
6	Cherry Pearmain	.. Byford ..	Oct. 28th	1-058	.65	.17	6-1	4/1/22	1-023
7	Skryme's Kernel	.. Hereford ..	Oct. 26th	1-053	.64	.15	3-1	17/1/22	1-025
8	Backwell Red	.. Backwell, Som.	Oct. 14th	1-054	.68	.10	5-5	13/1/22	1-027
9	Foxwhelp ..	.. Ledbury ..	Oct. 18th	1-054	.87	.23	4-8	13/1/22	1-027
10	" ..	.. Nunnington, Her.	Oct. 31st	1-058	.92	.24	3-0	4/1/22	1-031
11	Red Streak ..	.. Hereford ..	Nov. 16th	1-050	.49	.13	2-5	17/1/22	1-027
12	Teign Harvey	.. Newton Abbot ..	Oct. 20th	1-052	.54	.20	3-7	16/1/22	1-028
13	Cap of Liberty	.. Martock, Som.	Dec. 6th	1-074	.80	.32	3-4	14/3/22	1-031
14	" ..	.. " ..	Nov. 8th	1-083	.82	.37	4-2	8/3/22	1-035
15	Frederick ..	.. Dingestow, Mon.	Oct. 24th	1-058	.80	.05	2-7	16/1/22	1-031
16	Red Soldier ..	.. Hereford ..	Nov. 23rd	1-056	.83	.18	2-1	7/2/22	1-036
17	Kingston Black	.. Martock, Som.	Nov. 3rd	1-083	.75	.23	9-0	19/12/21	1-023
18	" ..	.. Kingston, Som.	Nov. 25th	1-090	.70	.25	8-0	23/3/22	1-027
19	" ..	.. Powick, Wor.	Nov. 23rd	1-080	.66	.18	5-6	10/4/22	1-028
20	" ..	.. Ledbury ..	Nov. 14th	1-076	.62	.18	5-0	24/3/22	1-029
21	" ..	.. Nunnington, Her.	Nov. 7th	1-074	.51	.19	4-0	6/4/22	1-030
22	" ..	.. Moonhampton, Her.	Nov. 11th	1-068	.59	.15	2-9	14/3/22	1-030
23	" ..	.. Hereford ..	Nov. 7th	1-074	.58	.19	4-4	30/1/22	1-032
24	" ..	.. Yatton, Som.	Nov. 8th	1-080	.81	.19	5-5	11/4/22	1-032
May, 1922.									

APPLES—

SHARP VARIETIES—

25	"	"	..	Breinton, Her.	Nov.	1st	1-059	.55	.16	3-6	30/1/22	1-032
26	"	"	..	.. White Lackington, Som.	Nov.	1st	1-062	.55	.19	3-4	29/1/22	1-033
* 27	"	"	..	.. Byford, Her.	Oct.	28th	1-066	.56	.16	4-5	3/1/22	1-038
CULINARY VARIETIES—												
28	Lane's Prince Albert			.. Lincs.	Dec.	12th	1-047	.93	.10	7-8	22/12/21	1-028
29	Bramley's Seedling			.. "	Dec.	12th	1-050	1.01	.14	5-0	22/12/21	1-034
SWEET VARIETIES—												
30	White Beach			.. Hereford	Nov.	16th	1-048	.43	.12	4-0	4/1/22	1-017
31	Sweet Alford			.. Newton Abbot	Oct.	20th	1-056	.39	.16	4-8	13/1/22	1-016
32	"			.. Long Ashton, Som.	Nov.	2nd	1-050	.19	.13	3-5	17/1/22	1-018
33	Sweet Blenheim			.. Martock, Som.	Nov.	22nd	1-073	.36	.25	7-7	18/1/22	1-022
34	John Day			.. Yatton, Somerset	Oct.	7th	1-062	.36	.20	4-2	13/1/22	1-023
BITTERSWEET VARIETIES—												
35	Frequin Audievre			.. Long Ashton, Som.	Dec.	13th	1-039	.20	.21	5-2	18/1/22	1-008
36	Strawberry Norman			.. Hereford	Nov.	4th	1-055	.42	.31	7-5	3/1/22	1-018
37	"			.. Ledbury	Nov.	16th	1-060	.37	.34	6-5	14/1/22	1-025
38	White Norman			.. Nunnington, Her.	Oct.	14th	1-051	.21	.28	5-0	13/1/22	1-020
39	Styre Wilding			.. " "	Nov.	11th	1-066	.23	.14	6-5	12/1/22	1-022
40	Thomas Hunt			.. N. Cadbury, Som.	Nov.	30th	1-070	.31	.29	6-5	2/2/22	1-025
41	Pocket Apple			.. Newton Abbot	Oct.	20th	1-057	.39	.22	4-2	14/1/22	1-025
42	Handsome Norman			.. Ledbury	Nov.	15th	1-060	.25	.27	5-3	1/2/22	1-025
43	Knotted Kernel			.. Byford, Her.	Oct.	21st	1-060	.31	.28	4-5	14/1/22	1-026
44	White Jersey			.. Churchill, Som.	Sept.	20th	1-056	.25	.35	3-3	1/10/22	1-033
45	Royal Wilding			.. Ledbury	Nov.	15th	1-061	.32	.20	4-6	1/2/22	1-033
46	Cherry Norman			.. Dingestow, Mon.	Oct.	26th	1-060	.25	.27	3-0	4/1/22	1-034

No.	Name of Variety.	District where Grown.	Date of Making.	Specific Gravity of Fresh Juice.	Malic Acid per cent.	Tannin per cent.	Rate of fermentation at 25°C.	Date of Filtering	Specific Gravity
MIXED APPLES—									
47	Mixed Apples	.. Yatton, Som.	Nov. 1st	1.057	.84	.19	3.3	13/1/22	1.033
48	" "	.. Newton Abbot	Oct. 21st	1.055	.51	.16	4.4	16/1/22	1.026
49	" "	.. Hereford and Mar- tock	Dec. 9th	1.066	.69	.23	4.7	17/1/22	1.050
PERRY—									
50	Oldfield	.. Twigworth, Glos.	Oct. 21st	1.058	.91	.09	3.1	15/12/22	1.030
PURE YEAST EXPERIMENT.									
The juice from a mixture of Apples (Cap of Liberty, Kingston Black and Strawberry Norman) was pasteurised for five minutes at a temperature of 165°F. and fermented with pure yeasts.									
51	Control (not pasteurised)	.. ..	Dec. 9th	1.069	.64	.27	4.5	13/3/22	1.024
52	Fermented with Yeast No. 6 (Kingston Black)	.. ..	"	"	"	"	"	26/4/22	1.030
53	" " " " " " " "	No. 8 (Romeril B.)	"	"	"	"	"	3/4/22	1.025
54	" " " " " " " "	No. 31 (Rüdesheimer)	"	"	"	"	"	25/4/22	1.027
55	" " " " " " " "	No. 32 (Steinberg)	"	"	"	"	"	25/4/22	1.028

varieties White Beach and John Day were tested for the first time. The first was rather lacking in character, but the second gave a very nice sweet cider, which made a good blend with the table varieties Nos. 28 and 29.

The bittersweet varieties were all rather similar in character, fairly good but without distinction. The best in the group were Nos. 40, 43, 45 and 46.

Of the mixed apples, No. 47 made of apples from one small orchard in Kenn, in Somerset, was very good with a well balanced pleasant flavour. No. 49, which fermented very slowly and was filtered too early, was too sweet but otherwise good.

Only one perry was made during the season and it was not up to the standard for the variety, the pears being rather over-ripe when received.

In the case of the pasteurised juices fermented with pure yeasts, No. 52 was the best. They were all very palatable ciders and the pasteurisation could not be detected in the flavour, but the difference in quality between the control, fermented in the usual way, and the samples fermented with pure yeast cultures was not very pronounced in this case. As it will be seen the pure yeast in the pasteurised juices fermented much more slowly than the natural yeasts in the unpasteurised control sample.

THE COMPOSITION OF VINTAGE APPLES IN 1921.

(Otto Grove.)

For some years the practice of publishing the annual analyses of the juices of vintage apples and pears in the Report has been discontinued, the data given in the earlier Reports being regarded, as sufficient to indicate the main features of the composition of individual varieties and the fluctuations due to seasonal influence. The summer of 1921 was so abnormal in respect of heat and drought that it is desirable to place on record the results for that year to show the effect of those extreme conditions on the vintage quality of the fruit. A particularly good opportunity of securing results covering a wider area was afforded by the competitions for vintage apples which were held at the Imperial Fruit Show at the Crystal Palace in the autumn of that year, the exhibited fruit being handed over to the Institute for analysis. The results, given in the appended table, may be regarded as supplementary to those included in the previous section of the Report dealing with the ciders made from that season's fruit, in which the seasonal characters are pointed out and need not be recapitulated here.

<i>Variety.</i>	<i>Specific Gravity of Juice.</i>	<i>Acid. %</i>	<i>Tannin. %</i>	<i>Grouver.</i>	<i>Distrid.</i>
Backwell Red	·61	·08	Research Station	Long Ashton.
Bagally's Darling	..	·58	·15	Capt. F. W. Crawshaw	Hempnall Cider Factory, Norwich.
Bedan des Partes	..	·15	·32	Research Station	Long Ashton.
Bedminster	·79	·15	Ditto	Ditto.
Black Skyre	·59	·23	E. A. Austin ..	Baltonsbrough, Glastonbury, Somt.
Broadleaf Jersey	..	·55	·20	E. V. Wheeler ..	Newnham Court, Tenbury, Worcs.
Broadleaf Norman	..	·18	·23	Ditto	Ditto.
Broad Tail	·23	·20		
Bunch Apple	·44	·16	F. G. Salisbury..	Bridge Farm, Coat, Martock, Somt.
Cap of Liberty	..	1·00	·37	Research Station	Long Ashton.
Ditto	..	·84	·32	E. V. Wheeler	Newnham Court, Tenbury, Worcs.
Carrion Apple	·40	·17	Capt. F. W. Crawshaw	Hempnall Cider Factory, Norwich.
Cherry Pearmain	..	·59	·23	Research Station	Long Ashton.
Cherry Norman	..	·18	·17	E. V. Wheeler ..	Newnham Court, Tenbury, Worcs.
Chiffers	·28	·25	Research Station	Long Ashton.
Cowarne Red	·56	·17	Ditto	Ditto.
Cremiere	..	·22	·16	Ditto	Ditto.
Crimson King	·25	·36	Ditto	Ditto.
Crimson King	·47	·17	H. Whiteway & Co., Ltd.	The Orchards, Whimble, Devon.
Dabinett	·14	·20	Research Station	Long Ashton.
Ditto	..	·27	·25	E. W. Dabinett	Kingweston, Taunton, Somerset.
Davis Crab	·94	·29	Research Station	Long Ashton.
Doux Amer	·32	·16	Ditto	Ditto.
Dove	·26	·11	Ditto	Ditto.
Dove's Seedling	..	·34	·13	Ditto	*Ditto.
Devonshire Bittersweet	..	·35	·57	E. V. Wheeler ..	Newnham Court, Tenbury, Worcs.
Dymock Red	·60	·15	Research Station	Long Ashton.
Ditto	..	·58	·20	E. V. Wheeler ..	Newnham Court, Tenbury, Worcs.
Ecarlatine	·22	·20	Research Station	Long Ashton.

Eggleton Styre	..	1-081	·18	·15	Ditto	Ditto.
Ellis' Bitter	..	1-069	·23	·28	H. Whiteway & Co., Ltd.	..	The Orchards, Whimble, Devon.	
Fair Maid of Devon	..	1-058	·99	·14	Research Station	..	Long Ashton.	
Flashers	..	1-072	·65	·15	F. G. Salisbury..	..	Bridge Farm, Coat, Martock, Somt.	
Foxwhelp	..	1-054	·53	·23	Research Station	..	Long Ashton.	
Ditto	..	1-057	·87	·13	E. V. Wheeler ..	..	Newnham Court, Tenbury, Worcs.
French White Norman	..	1-071	·38	·21	Ditto	..	Ditto.	
Frequin Audievre	..	1-050	·16	·35	Research Station	..	Long Ashton.	
Garter Apple	..	1-063	·73	·19	A. E. Hill ..	..	Eggleton Court, Ledbury, Herefordshire.
Gatcombe	..	1-067	·56	·17	Research Station	..	Long Ashton.	
Hagloe Crab	..	1-057	·56	·14	Capt. F. W. Lawshay	..	Hempnall Cider Factory, Norwich.	
Hangdown Pippin	..	1-069	·10	·37	Research Station	..	Long Ashton.	
Harry Masters Jersey	..	1-053	·17	·23	Ditto	..	Ditto.	
Hurtisman	..	1-058	·01	·17	Ditto	..	Ditto.	
Improved Pound	..	1-080	·18	·20	H. Whiteway & Co., Ltd.	..	The Orchards, Whimble, Devon.	
Joey Crab	..	1-061	·43	·49	Research Station	..	Long Ashton.	
John Day	..	1-070	·17	·18	Ditto	..	Ditto.	
John White	..	1-067	·17	·26	H. Whiteway & Co., Ltd.	..	The Orchards, Whimble, Devon.	
Kingston Black	..	1-072	·57	·23	Research Station	..	Long Ashton.	
Ditto	..	1-080	·45	·26	E. V. Wheeler ..	..	Newnham Court, Tenbury, Worcs.
Ditto	..	1-072	·47	·22	Ditto	..	Ditto.	
Knotted Kernel	..	1-066	·30	·36	Ditto	..	Ditto.	
Magg's Seeding	..	1-060	·69	·12	Research Station	..	Long Ashton.	
Mediate	..	1-062	·63	·12	H. Whiteway & Co., Ltd.	..	The Orchards, Whimble, Devon.	
Monsieur Jacques, No. 1	..	1-067	·29	·29	Research Station	..	Long Ashton.	
Naishes Bitter..	..	1-085	·23	·90	E. A. Austin ..	..	Baltonsbury, Glastonbury, Somt.
Neverblight	..	1-049	·47	·14	Research Station	..	Long Ashton.	
Norman	..	1-070	·29	·42	Ditto	..	Ditto.	
Passe Reine des Pommes	..	1-083	·30	·69	Ditto	..	Ditto.	
Philip Norman	..	1-056	·25	·17	Ditto	..	Ditto.	

<i>Variety.</i>	<i>Specific Gravity of Juice.</i>	<i>Acid %</i>	<i>Tannin. %</i>	<i>Grower.</i>	<i>District.</i>
Pom Roy17	.26	H. Whiteway & Co., Ltd.	The Orchards, Whimple, Devon.
People	1.085	.44	Research Station	Long Ashton.
Port Wine	1.080	.37	E. A. Austin ..	Baltonsbrough, Glastonbury, Somt.
Pride of Australia	..	1.076	.12	Research Station	Long Ashton.
Pym Square	1.059	.21	A. E. Hill ..	Eggleton Court, Ledbury, Herefordshire.
Rawling's Kernel	..	1.058	.10	Ditto	Ditto.
Red Bud42	.21	E. V. Wheeler ..	Newnham Court, Tenbury, Worcs.
Ditto72	.15	A. E. Hill ..	Eggleton Court, Ledbury, Herefordshire.
Red Foxwhelp	..	.63	.26	E. V. Wheeler ..	Newnham Court, Tenbury, Worcs.
Red Norman76	.17	Ditto	Ditto.
Ditto18	.20	Ditto	Ditto.
Red Streak14	.11	H. R. Spence ..	Stoke Abbott, Beaminster, Dorset.
Reinette Obry	..	.84	.19	Research Station	Long Ashton.
Rouge Bruyere	..	.72	.18	Ditto	Ditto.
Siberian Crab37	.18	E. V. Wheeler ..	Newnham Court, Tenbury, Worcs.
Silver Cup15	.41	Research Station	Long Ashton.
Skyrme's Kernel	..	.21	.26	Ditto	Ditto.
Somerset Foxwhelp	..	.70	.41	E. A. Austin ..	Baltonsbrough, Glastonbury, Somt.
Sour Woodbine	..	.26	.16	H. Whiteway & Co., Ltd.	The Orchards, Whimple, Devon.
Spreading Redstreak	..	.37	.15	A. E. Hill ..	Eggleton Court, Ledbury, Herefordshire.
Strawberry Norman	..	.96	.41	E. V. Wheeler ..	Newnham Court, Tenbury, Worcs.
String Pippin20	.11	H. R. Spence ..	Stoke Abbott, Beaminster, Dorset.
Sweet Alford60	.15	Research Station	Long Ashton.
Ditto10	.30	E. V. Wheeler ..	Newnham Court, Tenbury, Worcs.
Sweet Broadeye	..	.21	.17	H. Whiteway & Co., Ltd.	The Orchards, Whimple, Devon.
Sweet Coppin :	..	.12	..	Research Station	Long Ashton.
	..	.26	..		

Ditto	..	..	1-069	·19	·17	H. Whiteway & Co., Ltd.	The Orchards, Whimble, Devon.
Sweet Loyal Drain	..	..	1-073	·20	·60	E. W. Dabinett	Kingsweston, Taunton, Somt.
Sweet Woodbine	..	..	1-081	·23	·23	H. Whiteway & Co., Ltd.	The Orchards, Whimble, Devon.
Tardive Forestier	..	..	1-080	·23	·31	Research Station	Long Ashton.
Thomas Hunt	..	..	1-080	·20	·16	Ditto	Ditto.
Tom Putt	..	..	1-058	·73	·17	Ditto	Ditto.
Tremlettes Bitter	..	..	1-063	·31	·42	H. Whiteway & Co., Ltd.	The Orchards, Whimble, Devon.
Upright Red Streak	..	..	1-074	·86	·12	A. E. Hill	Eggleton Court, Ledbury, Herefordshire.
Victoria...	..	..	1-063	·17	·17	Research Station	Long Ashton.
Virgin Mary	..	..	1-076	·18	·30	Ditto	Ditto
Wilding Bittersweet	..	..	1-074	·29	·25	E. V. Wheeler	Newnham Court, Tenbury, Worcs.
White Jersey	..	..	1-071	·25	·27	Research Station	Long Ashton.
White Norman	..	..	1-080	·17	·46	Ditto	Ditto.
White Musk	..	..	1-052	·23	·19	A. E. Hill	Eggleton Court, Ledbury, Herefordshire.
White Sour	..	..	1-056	·38	·11	H. Whiteway & Co., Ltd.	The Orchards, Whimble, Devon.
Wyatt's Seedling	..	..	1-075	·49	·27	Ditto	Ditto
Yarlington Mill	..	..	1-055	·16	·27	Research Station	Long Ashton.
Yeovil Sour	..	..	1-057	·57	·28	Ditto	Ditto.

XVI.—ANNUAL REPORT OF THE CONSULTING CHEMIST.

(Dr. J. A. Voelcker, M.A., F.I.C.).

An increase on the number (37) of samples sent in 1921 by members for analysis has to be recorded, that for 1922 being 47.

The list is as follows :—

Linseed Cake	..	..	..	8
Cotton Cake	..	..	..	8
Compound Cakes and Meals	..	..	..	4
Fish Meals	..	..	..	2
Nauru Phosphate	..	..	..	1
Basic Slag	..	..	..	6
Bone Meal	..	..	..	1
Potash Salts	..	..	..	5
Nitrate of Soda	..	..	..	1
Water	..	..	..	6
Milk	..	..	..	1
Miscellaneous (Roots)	..	..	..	4
TOTAL				47

LINSEED CAKE.

The samples were, as a rule, good, alike as regards purity and quality. In two instances, however, the cakes were made from seed insufficiently screened from weed seeds.

COTTON CAKE.

These were uniformly good, and in several cases the quality was well above the average, the oil percentage in four instances reaching over 6 per cent.

COMPOUND CAKES AND MEALS.

There is nothing special to remark about these, beyond the fact that they were all found to be free from castor-oil bean, the occasional presence of which in such foods caused, in 1922, in some parts of the country, a great deal of trouble.

FISH MEAL.

The two samples sent were satisfactory as regards quality, and neither contained excessive oil or salt, but the price charged for one, viz., £19 : 6s. 9d. per ton delivered (January), was decidedly excessive; fish meal then being quoted at about £15 per ton.

NAURU PHOSPHATE.

The one sample of this sent gave 85.50 per cent. of phosphate of lime, but the fineness of grinding was only 57.9 per cent. This is a low figure, as 80 per cent. of fineness (as with basic slag), should be guaranteed. It is very essential, in using these ground phosphates, that attention be paid to the fineness of division, as their efficacy largely depends upon this.

BASIC SLAG.

This has, perhaps, been the most generally used phosphatic material, and, though there have been complaints as to only the lower grades being obtainable—owing to altered methods of manufacture—it would seem that this does not prevail so much in the West of England. Anyhow, of the six samples sent by members of the society, four of these gave respectively 37.65%, 38.19%, 38.34% and 41.40% of total phosphates, while only two fell below 20 per cent. In all cases, too, the fineness of grinding was satisfactory.

BONE MEAL.

The one sample sent was good and pure, giving 39.39% of phosphate of lime, with 5.85% of ammonia.

POTASH SALTS.

The supply of Potash salts has been quite satisfactory, and competition between the old German mines and the newly-opened Alsatian ones has brought about a very favourable position for purchasers. The samples sent have all proved to be up to quality guaranteed, the percentage of potash in four samples of Kainit submitted being respectively: 13.67%, 14.48%, 14.76% and 16.32%, while one sample of Muriate of Potash gave 50.13% of potash.

NITRATE OF SODA.

The one sample sent was good, testing 97.26 % purity.

WATER.

Of the six samples sent, two only were found to be good and pure; two others were capable of being improved by filtration, though in their present condition hardly satisfactory, while the other two were decidedly impure and not fit for drinking purposes.

MILK.

A sample was sent under the impression that it was poor in quality. This proved, however, not to be the case, the analysis giving :—

Water	..	..	..	87.02
Fat	..	..	..	3.90
Solids (not fat)	..	..	..	9.08
				100.00

These figures are decidedly above the “ standard ” required by the Society in their Milking Trials, and much beyond the demands of the Sale of Food and Drugs Act.

MANGELS.

A member sent for analysis and comparison samples of four different varieties of mangel. It may be of interest to append the respective results obtained :—

		<i>Red</i>	<i>Golden</i>	<i>Sugar</i>
		<i>Intermediate</i>	<i>Lock's</i>	<i>Tankard Mangel</i>
Water	.. ..	88.86	88.93	86.70
Albuminous compounds	.. ..	1.06	.87	1.12
*Soluble carbohydrates	.. ..	7.06	7.42	8.21
Crude Fibre	.. ..	2.02	1.90	2.98
Mineral matter	.. ..	1.00	.88	.99
		100.00	100.00	100.00
*Containing sugar	.. ..	6.61	6.67	7.77
				7.09

It will be noted that the “ Golden Tankard ” variety had the least water and was the highest in sugar. Next in order came the “ Sugar Mangel.”

Bath and West and Southern Counties Society.

PLYMOUTH MEETING, 1922.

JUDGES.

HORSES.

Shire.—T. FOWLER, Stud Farm, Tring, Herts.

Suffolk.—S. WOODIWISS, Graveleys, Great Waltham, Chelmsford.

Percherons.—Hon. A. E. PARKER, Norton Curliou, Warwick.

Hunters.—Hon. A. E. PARKER, Norton Curliou, Warwick.

Mountain, Moorland and other Ponies.—W. R. SMYTH, Orswell, Stoke Rivers, near Barnstaple.

Harness and Saddle.—(Harness): C. E. E. COOKE, The Close, Biggleswade, Beds; (Saddle): Hon. A. E. PARKER, Norton Curliou, Warwick.

Jumping.—Rev. E. A. MILNE, Cattistock, Dorset.

CATTLE.

Devon.—R. BRUFORD, Nerrols, Taunton.

South Devon.—W. L. HOSKING, Fentongollan, Probus, Cornwall.

Shorthorn.—W. GARNE, Abington, Fairford, Glos.

Dairy Shorthorn.—R. HOBBS, Kelmscott, Lechlade, Glos.

Hereford.—H. R. EVANS, Court of Noke, Pembridge, Hereford.

Sussex.—W. A. THORNTON, Daynton House, Kingsway, Hove, Sussex.

Red Poll.—S. WOODIWISS, Graveleys, Great Waltham, Chelmsford.

Aberdeen-Angus.—A. P. McLAREN, Aynho Warren, Banbury, Oxford.

British Friesian.—H. T. WILLETT, Monkton Parsonage, Ramsgate.

Jersey Cows and Heifers.—H. WALKER, Cook's Folly, Sneyd Park, Bristol.

Jersey Bulls.—H. B. NAPIER, Long Ashton, Bristol.

Guernsey.—G. E. DE GARIS, St. Leddard's, Castel, Guernsey.

Dexter.—Col. W. STALLARD, St. John's House, Worcester.

Jersey Butter Test.—A. F. SOMERVILLE, Dinder House, Wells, Somerset.

Guernsey Butter Test.—J. W. ASHBY, 2, Hanover Square, London, W.

Dairy Herds.—J. CRUMPLER, North Coker, Yeovil.

SHEEP.

Devon Longwooled.—J. H. GIBBINGS, Week, North Tawton, Devon.

South Devon.—E. B. LUSCOMBE, Court Farm, Woodleigh.

Kent or Romney Marsh.—R. H. GREEN, Estate Office, Willesborough, Kent.

Southdown.—J. B. TRIBE, Cobbett House, Pulborough, Sussex.
Hampshire Down.—B. J. WATERS, Bishopstone, Salisbury.
Oxford Down.—W. D. LITTLE, Middleton Stoney, Bicester, Oxon.
Dorset Horn.—L. C. ATTRILL, Bathingbourne, Sandown, Isle of Wight.
Dorset Down.—H. R. WATSON, Milborne Wick, Sherborne.
Exmoor Horn.—T. C. PEARCE, Leigh, Dulverton.
Dartmoor.—J. J. NICKELS, Rushford, Chagford.
Suffolk.—D. A. GREEN, East Donyland Hall, Colchester.
Ryeland.—T. E. DAVIES, Green Farm, Tidmarsh, Reading.

GOATS.

H. S. HOLMES PEGLER, Coombe Bury House, Kingston Hill, Surrey.

PIGS.

Berkshire.—J. FRICKER, Marsh Farm, Stalbridge, Dorset.
Large Black.—G. A. GOODCHILD, Oak House, Great Yeldham, Essex.
Large and Middle White.—C. SPENCER, Milpond, Little Oakley, Harwich.
Long White Lop-Eared.—W. MASHFORD, Lane End, Quither, Milton Abbot, Tavistock.
Gloucestershire Old Spots.—A. T. PRICE, Blackhall, Berkeley, Glos.
Wessex Saddleback.—L. L. BATTEN, Fighting Cocks Farm, Ower, Romsey.

PRODUCE.

Cider.—G. H. HOLLINGWORTH, Shire Hall, Gloucester.
Cheese.—W. A. TITLEY, 55, Victoria Street, Bristol.
Cream Cheese, Butter and Cream.—Mrs. A. M. LUKE, 9, St. James's Place, The Hoe, Plymouth.

COMPETITIONS.

Butter-Making.—Mrs. STEVENS, Ditchford Farm, Moreton-in-Marsh, Glos.
Milking.—W. J. H. PORTER, Glendale, Wedmore, Somerset.
Shoeing.—J. R. R. COLEMAN, M.R.C.V.S., The Limes, Croft Road, Swindon.

POULTRY.

C. B. BREEZE, Buckfastleigh, Devon (Classes 1 to 23, 50 to 53 and 58 to 71);
 and H. C. ANTHONY, Home Farm, Euxton, near Chorley (Classes 1, 24 to 49 and 54 to 71).

FORESTRY.

Prof. H. A. PRITCHARD, 76, Castle Street, Cirencester.

SMALL HOLDINGS.

T. YEO, South Lea, Braunton, North Devon.

PRIZE AWARDS, 1922.

* * An animal designated in this list as the "reserve number" is entitled, *conditionally*, to succeed to any prize that may become vacant in its class by reason of the animal placed above it by the Judges afterwards failing to qualify.

† Animals where not otherwise stated, may be considered to have been bred by the Exhibitor.

ABBREVIATIONS EXPLAINED :—S., sire ; d., dam ; s. d., sire of dam ; y., year ; m., month ; w., week ; d., day ; R., Reserve ; V.H.C., Very Highly Commended ; H.C., Highly Commended ; C., Commended.

£250 towards the Prizes in the Horses, Cattle, Sheep and Pig Classes were contributed by the Devon County Agricultural Association, and the Prizes in Classes 46, 47, and 248 to 258 by or through the Plymouth Local Committee).

HORSES.

SHIRE.

(Registered or eligible for registration in the Shire Horse Society's Stud Book).

CLASS 1.—*Shire Mare, in-Foal, or with Foal at foot.* [4 entries.]

I. (215.)—O. WILLIAMS, Crossways, near Cowbridge, Glam., brown, **Crossways Violet**, foaled 1918, bred by G. C. Pennington, Barrington Gate, Holbeach ; s Gallant Commander (33212), d Big Beauty (80409), s d Bearwardcote Hero (23116) ; with foal.

II. (210.)—W. F. SOBEY, Tregondale, Liskeard, Cornwall, bay, **Yatesbury Lady Cole** (69346), foaled 1910, bred by the late Lord Winterstoke, Blagdon, near Bristol ; s King Cole 7th (26351), d Rickford Lady (58140), s d Dodford Spark ; with foal by Basildon Clansman.

CLASS 2.—*Shire Filly or Gelding, foaled in 1921.* [5 entries.]

I. (210.)—W. J. CUMBER, Theale, Berks, black filly, **Theale Belladonna** ; s Basildon Clansman (36277), d Theale Nightshade (76207), s d Mimm's Champion (26462).

II. (25.)—H. J. KINGWELL, Bow Grange, Totnes, black and white mare, **Lady's Maid**, bred by L. N. Aldrive, Landcombe, Dartmouth ; s Carlton Forest King, d Beggar Maid (59228), s d Kirby Muscloe Harold (22491).

III. (23.)—H. HAWKEY & SONS, Trevuza, Fraddon, Cornwall, bay filly, **Retford Beauty**, bred by A. Barber, Grove Grange, Retford Stud ; s Goadby Drayman (27367), d Eastern Brunette (74293), s d Holker Menestrel 2nd (22451).

CLASS 3.—*Shire Filly or Gelding, foaled in 1920.* [3 entries.]

I. (#10.)—W. J. CUMBER, Theale, Berks, bay filly, **Theale Misty Morn** (Vol. 43); s Theale Lockinge (36246), d Avon Queen (69478), s d King Cole 7th (26351).

II. (#5.)—O. WILLIAMS, Crossways, Cowbridge, bay filly, **Fenny Lady Goalkeeper**, bred by G. Cotterrell, Fenny Compton, Leamington; s Champion's Goalkeeper, d Gleadthorpe Queen, s d Mimm's Champion.

III. (#3.)—W. F. SOBEY, Tregondale, Liskeard, Cornwall, dark bay filly, **Tregondale Pride**; s Tregondale King Cole (33603), d Tregondale Charm (90732), s d Llyndys Field-Marshal (29554).

CLASS 4.—*Shire Filly or Gelding, foaled in 1919.* [3 entries.]

I. (#10.)—W. J. SQUIRE & SONS, Hole Farm, Ermington, bay filly, **May Blossom** (Vol. 43), bred by J. H. Wild, Burton Lodge, Melton Mowbray; s Bardon Forest Hard Lines (25889), d Flower (7792), s d Derford Corrector (22280).

II. (#5.)—W. C. COWLING, Lafrwda Station Road, Okehampton, light bay filly, **Crimble Clematis**, bred by J. W. Baron, Wood End, Kempston, Bedford; s Surfleet Future King (35230), d Crimble Primrose (84462), s d Holker Mars (26309).

III. (#3.)—W. F. SOBEY, Tregondale, Liskeard, Cornwall, brown filly, **Tregondale Fashion** (106096); s Tregondale King Cole (33603), d Tregondale Flash (86726), s d Youngsbury Ragged Boy (28954).

MEDAL (A).

GIVEN BY THE SHIRE HORSE SOCIETY.

A Gold Medal, or the sum of £10, for the best Mare or Filly in the Shire Horse Classes, under Condition 47, and to the Breeder of the winner under the Condition stated, a prize of £5.

Medal.—W. J. CUMBER, Theale, Berks, bay filly, **Theale Misty Morn** (Vol. 43); s Theale Lockinge (36246), d Avon Queen (69478), s d King Cole 7th (26351).

R.—O. WILLIAMS, Crossways, Cowbridge, bay filly, **Fenny Lady Goalkeeper**, bred by G. Cotterrell, Fenny Compton, Leamington; s Champion's Goalkeeper, d Gleadthorpe Queen, s d Mimm's Champion.

CLASS 5.—*Shire Stallion, foaled before 1920.* [2 entries.]

I. (#15.)—W. F. SOBEY, Tregondale, Liskeard, Cornwall, bay stallion, **Tregondale King** (36988), foaled 1918; s Tregondale King Cole (33603), d Tenant Gaiety (76273), s d Norman Landmark (26517).

II. (#10.)—W. J. SQUIRE & SONS, Hole Farm, Ermington, dark bay, **Royal Hero 4th** (37788), bred by J. T. Johnson, Inkerson Grange, Sutton St. Edmunds; s Bardon Hero (30134), d Inkerson Diamond (103737), s d Traitor (15401).

CLASS 6.—*Shire Stallion, foaled in 1920.* [3 entries.]

I. (#10.)—S. H. JENKS, Pilsdon Manor, Whitechurch, Canonicorum, bay, **Pilsdon Champion** ; s Boro Draughtsman (34567), d Champion Mistress (80858), s d Childwick Champion (22215).

II. (#5.)—W. F. SOBBY, Tregondale, Liskeard, Cornwall, bay, **Tregondale Nonsuch**, bred by A. Chapman, Swaby, Alford, Lincs. ; s Inkford Nonsuch (34846), d Eastville Briak (88351), s d Ratcliffe Conquering King (24548).

III. (#3.)—S. A. ROSE, Roswin, Summercourt, Grampound Road, Cornwall, black, white markings, **King Mitchell** ; s Theale Cardinal (35243), d Dorothy Second, s d Hoole Honest Tom (22457).

CLASS 7.—*Shire Colt, foaled in 1921.* [5 entries.]

I. (#10.)—W. J. CUMBER, Theale, Berks, bay, **Treleptan King**, bred by Capt. J. M. Taylor, Leighton Hall, Welshpool ; s Theale Lockinge (35246), d Mellington Evergreen (64355), s d Prospect Prince Albert (21772).

II. (#5.)—O. WILLIAMS, Crossways, Cowbridge, Glam., brown, **Crossway Friar** ; s Monks Green Friar, d Orfold Black Girl, s d King of Tandridge.

III. (#3.)—F. SEWARD, Straitgate, Ottery St. Mary, Devon, bay, **Straitgate Friar Tuck** ; s Carlton Friar Tuck (36384), d Bayford Merry Lass (91328), s d Coleshill Forester (24149).

R.—W. H. NEAL, Yealmpton Farm, Plympton, brown, bred by H. Whitley, Primley, Paignton ; s Primley Emminence, d Sussex Pride.

SUFFOLK.

(£36 towards the Prizes in Classes 8 to 11 were contributed by the Suffolk Horse Society).

CLASS 8.—*Suffolk Filly, foaled in 1920.* [1 entry.]

I. (#10.)—RIGHT HON. VISCOUNT ELVEDEN, M.P., Pyrford Court, Woking, Surrey, chestnut, **Comb's Confidence**, bred by H. D. Louge, Abbot's Hall, Stowmarket, Suffolk ; s Sudbourne Arabi, d Comb's Vesta, s d Sudbourne Sunshine.

CLASS 9.—*Suffolk Filly, foaled in 1919—First prize, £10—second, £5—third, £3.*

[No ENTRY.]

CLASS 10.—*Suffolk Stallion, foaled in 1919—First prize, £10—second, £5—third, £3.*

[No ENTRY.]

CLASS 11.—*Suffolk Stallion, foaled in 1920.* [1 entry.]

I. (#10.)—MRS. S. FREELAND, Cheselbourne Manor, near Dorchester, chestnut ; s Sudbourne Beau Brocade (4235), d Sudbourne Messina (6844), s d Sudbourne Arabi (3287).

PERCHERONS.

(£22 towards the Prizes in Classes 12 to 14 were contributed by the British Percheron Horse Society).

CLASS 12.—*Percheron Mare, in-foal, or with foal at foot.* [2 entries.]

I. (#10.)—J. PUTNAM, Estate Office, Home Farm, Farringdon, near Exeter, grey, **Mansarde** (F.110264); s Ismail (F.82620), d Juvenile (F.87362), s d Bruc (F.67197); with foal.

II. (#5.)—J. PUTNAM, grey, **Semillante** (136599) (293); s Ontario (F.119738), d Montretout (F.105617), s d Insensible (F.80431); with foal.

CLASS 13.—*Percheron Colt or Filly Foal, produce of Mare in Class 12*
—[2 entries.]

I. (#5.)—J. PUTNAM, Estate Office, Home Farm, Farringdon, near Exeter grey, **Semillante** (136599), (293); s Ontario (F.119738), d Montretout (F.105617), s d Insensible (F.80431); with foal.

CLASS 14.—*Percheron Colt, Filly or Gelding, foaled in 1919 or 1920.*
[1 entry.]

[No Award.]

ANY AGRICULTURAL BREED.

CLASS 248.—*Agricultural Mare or Gelding, foaled before 1920, the property of a farmer residing within 30 miles of Plymouth.*
[2 entries.]

I. (#4.)—W. F. SOBEY, Tregondale, Liskeard, Cornwall, bay, **Yatesbury Lady Cole** (69346), foaled 1910, bred by the late Lord Winterstoke, Blagdon, near Bristol; s King Cole 7th (26351), d Rickford Lady (58140), s d Dodford Spark; with foal by Basildon Clansman.

II. (#2.)—W. F. SOBEY, brown filly, **Tregondale Fashion** (106096); s Tregondale King Cole (33603), d Tregondale Flash (86726), s d Youngsbury Ragged Boy (28954).

CLASS 249.—*Pair of Agricultural Mares or Geldings, foaled before 1920, the property of a farmer residing within 30 miles of Plymouth*—[2 entries.]

I. (#5.)—W. F. SOBEY, Tregondale, Liskeard, Cornwall, bay, **Yatesbury Lady Cole** (69346), foaled 1910, bred by the late Lord Winterstoke, Blagdon, near Bristol; s King Cole 7th (26351), d Rickford Lady (58140), s d Dodford Spark; with foal by Basildon Clansman.

II. (#3.)—W. F. SOBEY, brown filly, **Tregondale Fashion** (106096); s Tregondale King Cole (33603), d Tregondale Flash (86726), s d Youngsbury Ragged Boy (28954).

HUNTERS.

CLASS 15.—*Hunter Mare, in-foal, or with foal at foot.* [7 entries.]

I. (£15.)—J. HOLMES, Penyfai, Llanelly, South Wales, chestnut, **Miss Buckley**, bred by T. Sheen, Mallow, Ireland; s Walmsgate, d Huntress, s d Republican; with foal by King Edgar.

II. (£10.)—S. H. JENKS, Pilsdon Manor, Whitechurch, Canonieorum, bay, **Cark Victory** (5643), foaled 1917, bred by J. Dickinson, Cark-in-Cartmel; s Soft Answer; with foal.

III. (£3.)—J. M. KITROW, Trossell, North Petherwin, Egloskerrey, R.S.O., dark bay, **Primrose 8th** (5920); with foal by Interloper.

R.—H. R. LUCAS, Bonyalva, St. Germans, Cornwall, chestnut, **Silence 2nd** (5376), foaled 1915, bred by Lucas Bros., Bonyalva, St. Germans; s Marzio (Vol. 21), d Bracelet (5374, Vol. 8), by Kano (Vol. 20); with foal by Interloper.

MEDAL (C).

GIVEN BY THE HUNTERS' IMPROVEMENT AND NATIONAL LIGHT HORSE BREEDING SOCIETY, UNDER CONDITIONS 48 AND 49.

A Gold Medal, or £5 and a Bronze Medal, for the Best Hunter Brood Mare in Class 15, registered with a number in the Hunter Stud Book at the time of entry or within a month of the award, not having previously won the above-named Society's Gold Medal as a Brood Mare in 1922, and which must have her foal at foot, or produce a living foal in 1922 to a thoroughbred horse or Registered Hunter sire. In the second instance a certificate to that effect must be forwarded before the Medal is sent.

Medal.—J. HOLMES, Penyfai, Llanelly, South Wales, chestnut, **Miss Buckley**, bred by T. Sheen, Mallow, Ireland; s Walmsgate, d Huntress, s d Republican; with foal by King Edgar.

R.—S. H. JENKS, Pilsdon Manor, Whitechurch, Canonieorum, bay, **Cark Victory** (5643), foaled 1917, bred by J. Dickinson, Cart-in-Cartmel; s Soft Answer; with foal.

CLASS 16.—*Hunter Filly, Colt or Gelding, foaled in 1921.* [7 entries.]

I. (£10.)—R. P. CAWSEY, Haddacott, Huntshaw, Torrington, red bay filly, **Gay Lassie 3rd** (6031); s Gay Lally, d Princess 13th (5949).

II. (£5.)—S. H. JENKS, Pilsdon Manor, Whitechurch, Canonieorum, chestnut colt, **Pilsdon King**; s Silver Grill, d Cark Gipsy Maid 2nd (4260).

III. (£3.)—H.R.H. THE PRINCE OF WALES, K.G., York House, St. James's Palace, London, brown colt, bred by J. Keeble, Manningtree, Essex; s Irish Mariner, d Vestment, s d Queen's Birthday.

R.—E. HOCKING, Breage, Helston, Cornwall, brown colt, **Jazz**, bred by S. Adams, Penpraze, Sithney, Helston; s Bezhill, d Lavender, s d Star of Yorkshire.

CLASS 17.—*Hunter Filly, Colt or Gelding, foaled in 1920.* [4 entries.]

I. (£10.)—W. YEO, Bellabown, Newton Tracey, near Barnstaple, chestnut gelding, **Rocklight**; s Captain Rush, d Deep Sea.

II. (£5.)—HON. V. A. ROBARTES, Lanhydrock, Bodmin, Cornwall, chestnut filly, **Marsh-Tit** (G.S.B.); s Marzio, d Specklebreast (G.S.B.), s d Misselthrush.

III. (£3.)—MRS. G. S. MEADOWS, Belgrove House, near Tavistock, chestnut filly, **Tweenymaid**; s Interloper, d Mermaid, s d Jorrock.

R.—J. F. HOCKING, Glenly House, St. Clear, Cornwall, bay gelding; s Marzo, d Springale.

CLASS 18.—*Hunter Filly or Gelding, foaled in 1919.* [3 entries.]

I. (£10.)—J. HOLMES, Penyfai, Llanelly, South Wales, chestnut filly, **Victory**, bred by J. Williams, St. Clears; s Scipio, d Miss Buckley (3570), s d Walmsgate.

II. (£5.)—S. H. JENKS, Pilsdon Manor, Whitchurch, Canonichorum, brown gelding, **Silver Cross**, bred by J. Dickinson, Cark-in-Cartmel; s Silver Grill, d Bridget 4th.

III. (£3.)—J. F. HOCKING, Glenly House, St. Clear, Cornwall, chestnut filly, **Ruby**; s Marzo, d Springale.

CLASS 19.—*Hunter Mare or Gelding, foaled in 1918, to carry 14 stone and over.* [3 entries.]

I. (£10.)—E. THOMAS, St. Coose, Truro, grey gelding, **Huntsman**, bred by T. R. Bolitho, Trengwainton, Penzance; s Abdulla, d Whitewings, s d Roseberry Dispatch.

II. (£5.)—A. J. JACKMAN, Caprera Terrace, Plymouth, gelding, **Plurion**, bred by — Milling, Coomber, Co. Down; s Edgar's Lot, s d Mascarville.

III. (£3.)—MISS JERVOISE SMITH, Sandwell, Harberton, bay gelding, **Searchlight**; s Warwick Commander, d Sunbeam, s d Surgot.

CLASS 20.—*Hunter Mare or Gelding, foaled in 1918, to carry under 14 stone.* [3 entries.]

I. (£10.)—J. K. STEVENSON, The Chase, Upper Welland, Malvern Wells, Worcester, black gelding, **Best Man**, bred by M. Harrison, Cirencester; s The Best.

II. (£5.)—H.R.H. THE PRINCE OF WALES, K.G., York House, St. James's Palace, London, brown gelding, **Trail Blazer**, bred by J. Keeble, Muntingtree, Essex; s General Stossell, d Henbane, s d Cock-a-hoop.

III. (£3.)—C. E. TANTON, Cranford, Torrington, North Devon, brown gelding **Billy**; s True Blue, d Rebecca.

CLASS 21.—*Hunter Mare or Gelding, foaled before 1919, to carry not more than 12 stone 7 lbs. [7 entries.]*

I. (220.)—MRS. R. LAYE, The Warren, Wotton-under-Edge, Glos., bay gelding, **Diplomatist**, foaled 1913, bred by J. Dunkeley, Kislisbury, Northants; s First Consul, s d Ethelbruce.

II. (210.)—A. J. JACKMAN, Caprera Terrace, Plymouth, bay gelding, **Ramble**, aged; s Bushido.

III. (23.)—S. PETCH, Gainsborough House, Milborne Port, Somerset, bay gelding, **Idalian**, foaled 1916; s Marzio, d Ida, s d Locksley.

R.—J. HOLMES, Penyfai, Llanelly, South Wales, bay gelding, **Huntsman**, foaled 1917, bred by J. Williams, St. Clears; s Sysonby, d Miss Buckley (3570), s d Walmsgate.

CLASS 22.—*Hunter Mare or Gelding, foaled before 1919, to carry over 12 stone 7lbs. and under 14 stone. [9 entries.]*

I. (220.)—J. K. STEVENSON, The Chase, Upper Welland, Malvern Wells, Worcester, black gelding, **Best Man**, bred by M. Harrison, Cirencester; s The Best.

II. (210.)—MISS V. WELLESLEY, Ford House, Churchinford, Somerset, roan mare, **The Phantom** (Vol. X., H.S.B., Supp. No. 5955), foaled 1916, bred by R. Bassett, Deddington, Oxon; s Chanteur, s d Passion Flower.

III. (23.)—T. R. BOLITHO, Trengwainton, Penzance, iron grey gelding, **Mince Pie**, foaled 1917; s Golden Grebe, d Badger Pie, s d Adular.

R.—W. YEO, Belladown, Newton Tracey, near Barnstaple, bay mare, **Jean** (Vol. 8, 5321), foaled 1916; s Rockaway, d Gaiety Girl 2nd.

H.C.—C. E. TANTON, Cranford, Torrington, North Devon, brown gelding, **Billy**; s True Blue, d Rebecca.—J. HOLMES, Penyfai, Llanelly, South Wales, bay gelding, **Huntsman**, foaled 1917, bred by J. Williams, St. Clears; s Sysonby, d Miss Buckley (3570), s d Walmsgate.

CLASS 23.—*Hunter Mare or Gelding, foaled before 1919, to carry 14 stone or over. [7 entries.]*

I. (220.)—J. PUTNAM, Farringdon House, near Exeter, bay gelding, **Jorrocks**, 7 y.

II. (210.)—J. K. STEVENSON, The Chase, Upper Welland, Malvern Wells, Worcester, bay gelding, **Carrigaline**, 7 y., bred by Dr. Connell, Carrigaline, Co. Cork; s Kentford.

III. (23.)—E. THOMAS, St. Coose, Truro, grey gelding, **Huntsman**, bred by T. R. Bolitho, Trengwainton, Penzance; s Abdulla, d Whitewings, s d Roseberry Dispatch.

R.—A. J. JACKMAN, Caprera Terrace, Plymouth, brown gelding, **Brown Willy**, 7 y.; s Stanard.

CLASS 24.—*Hunter Mare or Gelding, foaled before 1919, that had not won a prize of £10 or over under Saddle at any Show held previous to April 15th, 1922. [16 entries.]*

I. (£10.)—J. K. STEVENSON, The Chase, Upper Welland, Malvern Wells, Worcester, bay gelding, **Carrigaline**, 7 y., bred by Dr. Connell, Carrigaline, Co. Cork ; s Kentford.

II. (£5.)—E. THOMAS, St. Coose, Truro, grey gelding, **Huntsman**, bred by T. R. Bolitho, Trengwainton, Penzance ; s Abdulla, d Whitewings, s d Roseberry Dispatch.

III. (£3.)—MISS V. WELLESLEY, Ford House, Churchinford, Somerset, roan mare, **The Phantom** (Vol. X, H.S.B., Supp. No. 5955), foaled 1916, bred by R. Bassett, Deddington, Oxon ; s Chanteur, s d Passion Flower. *

R.—S. PETCH, Gainsborough House, Milborne Port, Somerset, bay gelding, **Idalian**, foaled 1916 ; s Marzio, d Ida, s d Locksley.

CLASS 25.—*Hunter Mare or Gelding, not exceeding 6 years old, the property of a farmer in Devon. [4 entries.]*

I. (£10.)—W. YEO, Belladown, Newton Tracey, near Barnstaple, bay mare, **Jean** (Vol. 8, 5321), foaled 1916 ; s Rockaway, d Gaiety Girl 2nd.

II. (£5.)—W. YEO, brown mare, **Dark Duchess** (Reg. No. 5654), foaled 1916 ; s Barbe Fence, d Joan of Arc, s d Descender.

III. (£3.)—C. E. TANTON, Cranford, Torrington, North Devon, brown gelding, **Billy** ; s True Blue, d Rebecca.

R.—A. J. SLADE & SON, Budshead Barton, St. Budeaux, Devon, bay gelding, **Desmond**, foaled 1916 ; s Tyranny, d Princess May, s d Reverberation.

CLASS 26.—*Selling Class. Hunter Mare or Gelding, three years old or over. [6 entries.]*

(Any Animal entered in Class 26 could have been claimed for 100 Guineas.)

I. (£10.)—A. J. JACKMAN, Caprera Terrace, Plymouth, gelding, **Bluestone**, 5 y. ; s Beechwood.

II. (£5.)—A. J. SLADE & SON, Budshead Barton, St. Budeaux, Devon, brown gelding, **Tyrant**, foaled 1914 ; s Tyranny, d Camilla, s d Rockaway.

III. (£3.)—A. J. JACKMAN, chestnut gelding, **Emblem**, 6 y. ; s Irish Linen.

R.—A. J. JACKMAN, gelding, **Plurion**, bred by — Milling, Coomber, Co. Down ; s Edgar's Lot, s d Mascarville.

CLASS 250.—*Hunter Mare or Gelding, foaled before 1919, the property of a resident within 30 miles of Plymouth, to carry over 12 stone 7 lbs. and under 14 stone. [7 entries.]*

I. (£3.)—A. J. JACKMAN, Caprera Terrace, Plymouth, bay gelding, **Ramble**, aged ; s Bushido.

II. (23).—W. YEO, Belladown, Newton Tracey, near Barnstaple, bay mare, **Jean** (Vol. 8, 5321), foaled 1916; s Rockaway, d Gaiety Girl 2nd.

III. (22).—H. R. LUCAS, Bonyalva, St. Germans, Cornwall, brown mare, **Mischief 4th** (5377), foaled 1917; s Golden Grebe, d Bracelet (Vol. 8, 5374), s d Kano.

R.—MRS M. MOON, Clondesleigh, Brixton, South Devon, chestnut gelding, **Tangerine**, foaled 1916, bred by G. Mitchell, St. Blaze; s Golden Grebe.

CLASS 251.—*Mare or Gelding, foaled before 1919, the property of a resident within 30 miles of Plymouth. to carry 14 stone or over.*
[5 entries.]

I. (26).—A. J. JACKMAN, Caprera Terrace, Plymouth, brown gelding **Brown Willy**, 7 y; s Stanard.

II. (23).—A. J. JACKMAN, gelding, **Bluestone**, 5 y.; s Beechwood.

III. (22).—A. J. SLADE & SON, Budshead Barton, St. Budeaux, Devon, bay gelding, **Desmond**, foaled 1916; s Tyranny, d Princess May, s d Reverberation.

SPECIAL PRIZE (B.)

GIVEN BY CAPTAIN H. G. HAWKER.

For the best Animal entered in Classes 19 to 26, 250 or 251, that had been fairly hunted with a recognised pack of Foxhounds, Stag-hounds or Harriers in Devon or Cornwall, during the past season. A certificate to this effect to be produced from the Master of the Hounds.

I. (25 5a).—J. PUTNAM, Farrington House, near Exeter, bay gelding, **Jorrocks** 7 y.

R.—T. R. BOLITHO, Trengwainton, Penzance, iron grey gelding, **Mince Pie**, foaled 1917; s Golden Grebe, d Badger Pie, s d Adular.

MEDAL (L).

A Silver Medal or £1 (at the option of the winner), for the best Hunter Mare or Gelding of any age, exhibited by a member of the Hunters' Improvement and National Light Horse Breeding Society, in Classes 19 to 26, whose subscription to that Society must be paid within a month of the award.

Only prize-winners in the Classes were eligible for these Medals.

Medal.—MISS V. WELLESLEY, Ford House, Churchinford, Somerset, roan mare, **The Phantom** (Vol. 10, H.S.B., Supp. No. 5955), foaled 1916, bred by R. Bassett, Deddington, Oxon; s Chanteur, s d Passion Flower.

R.—H.R.H. THE PRINCE OF WALES, K.G., York House, St. James's Palace, London, brown gelding, **Trail Blazer**, bred by J. Keeble, Munningtree, Essex; s General Stossell, d Henbane, s d Cock-a-hoop

WELSH MOUNTAIN PONIES.

CLASS 27.—*Welsh Mountain Brood Mare, foaled in or before 1918, not exceeding 12 hands, neither docked or hogged, in-foal or with foal at foot, and must produce a foal in 1922 before receiving a prize.* [4 entries.]

I. (210.)—F. F. MASON, The Faraam, Killay, Glamorgan, grey, **Faraam Silver-light** (3802), foaled 1911, bred by M. Lloyd, Llanwrde, Carmarthenshire; s Dyoll Starlight 4th, d Dyoll Quicksilver (78); with foal by Grove Elfin.

II. (25)—G. J. LYELL, Heswell, Cheshire, grey, **Ness Thistle**, foaled 1915, bred by E. Jones, Cross Inn; s Ch. Shooting Star (73), d Wedros Gem (3418), s d Eiddwen Flyer 3rd (5); with foal by Ness Prince (418).

III. (23.)—F. F. MASON, blue roan, **Fairwood Heather Bell**, foaled 1913; s Fairwood Tommy Tittlemouse (558), d Fairwood Blue Bell (3201); with foal by Grove Grey Dawn.

CLASS 28.—*Welsh Mountain Stallion, foaled in or before 1918, not exceeding 12 hands, and neither docked or hogged.* [2 entries]

I. (210.)—F. F. MASON, The Faraam, Killay, Glam., grey, **Grove Elfin** (729), bred by Mrs. H. D. Greene, Grove, Craven Arms, Salop; s Grove Ballistote (200), d Grove Fairy (2531).

II. (25.)—F. F. MASON, grey, **Grove Grey Dawn** (893), foaled 1914, bred by Mrs. H. D. Greene, Grove, Craven Arms; s Dyoll Starlight 4th, d Grove Grey May (2879), s d Stretton Dynamite (76).

MOUNTAIN AND MOORLAND PONIES

(other than Welsh Mountain).

(The First Prizes in Classes 29 and 32 were given by the President (H.R.H. The Prince of Wales. K.G.).

CLASS 29.—*Mountain or Moorland Pony Mare, not exceeding 13 hands, in-foal or with foal at foot.* [3 entries.]

I. (25.)—H.R.H. THE PRINCE OF WALES, K.G., York House, St. James's Palace, London, bay, **Diana 2nd**, bred by M. Bawden, Tavistock; with foal by Sea Bath (S.B.).

II. (23.)—H.R.H. THE PRINCE OF WALES, K.G., bay Dartmoor, **Warbrook**, foaled 1918; s Dwarka, d Dartmoor; in-foal by Dartmoor.

CLASS 30.—*Mountain or Moorland Pony Mare, not exceeding 12.2 hands, in-foal or with foal at foot.* (6 entries.)

I. (25.)—MISS CALMADY-HAMLYN, M.B.E., J.P., Bidlake Vean, Bridestowe, brown Dartmoor, **The Young Visitor** (N.S.P.B. 3965 Dartmoor Section), foaled 1916; with foal by St. Omer.

II. (23.)—MISS CALMADY-HAMLYN, M.B.E., J.P., brown Dartmoor, **Judy 5th**, foaled 1915, bred by E. P. Northey, Higher Bowden, Okehampton; with foal.

III. (22.)—H.R.H. THE PRINCE OF WALES, K.G., York House, St. James's Palace, London, bay Dartmoor, **Never Mist**, foaled 1918 ; d Dartmoor ; in-foal.

R.—W. G. KINGWELL, Beechfield, St. Brent, Devon, skewbald Shetland, **Noery** (3343), foaled 1912, bred by Lady G. Crawford, Coxhill, Lymington, Hants ; s Countersink (486), d Nut's Meg (2316), s d Nutman (384).

CLASS 31.—*Mountain or Moorland Pony Mare or Gelding, not exceeding 13.2, hands, to be ridden.* [3 entries.]

I. (25.)—MISS M. PUTNAM, Farrington House, near Exeter, bay gelding, **Playful**, 8 y.

II. (23.)—MISS R. SIMMONDS-HODGE, Belmont, Devoran, Cornwall, dark brown mare, **Trixie**, foaled 1917 ; s Denmark.

III. (22.)—MRS. J. O. MUNTZ, Foxhams, Horrabridge, brown Dartmoor mare, **The Dart**, foaled 1917, bred by — Southcott, Horrabridge.

CLASS 32.—*Mountain or Moorland Pony Stallion, not exceeding 13 hands.* [4 entries.]

I. (25.)—MISS CALMADY-HAMLYN, Bidlake Vean, Bridestowe, bay Dartmoor, **The Leaf**, foaled 1917, bred by H.R.H. The Prince of Wales, K.G., Tor Royal ; s (entered Vol. xvi, N.P.S.S.B.).

II. (23.)—H.R.H. The Prince of Wales, K.G., York House, St. James's Palace, London, chestnut Dartmoor, **The Jester**, foaled 1917, bred by — Down, Ringsett, Devon.

III. (22.)—W. G. KINGWELL, Beechfield, South Brent, Devon, skewbald Dartmoor, **King Hall**, foaled 1918, bred by W. Luscombe, Hall, Ivybridge, Devon ; s Happy Jack.

R.—W. G. KINGWELL, piebald Shetland, **King Bevis**, foaled 1919, bred by G. Clarke, Aberdeen, Scotland ; s Kingsetter (503), d Mavitz (3508), s d Besieger (235).

CLASS 252.—*Mountain or Moorland Pony Mare or Gelding, not exceeding 12.2 hands, the property of a resident within 30 miles of Plymouth.* [3 entries.]

I. (23.)—MISS CALMADY-HAMLYN, M.B.E., J.P., Bidlake Vean, Bridestowe, brown Dartmoor, **The Young Visitor** (N.P.S.B. 3965 Dartmoor Section), foaled 1916 ; with foal by St. Omer.

II. (22.)—W. G. KINGWELL, Beechfield, St. Brent, Devon, skewbald Shetland, **Norey** (3343), foaled 1912, bred by Lady G. Crawford, Coxhill, Lymington, Hants ; s Countersink (486), d Nut's Meg (2316), s d Nutman (384).

OTHER PONIES.

CLASS 33.—*Mare, not exceeding 14.3 hands, suitable to breed Polo or Riding Ponies, in-Foal, or with foal at foot.* [3 entries.]

I. (28.)—MRS. J. O. MUNTZ, Foxhams, Horrabridge, Devon, chestnut, **Glory** ; St. Osmond ; with foal by Lone Song.

xiv *Prizes awarded to Ponies and Harness and Saddle Horses.*

II. (25.)—MRS. J. O. MUNTZ, chestnut, **Robbery** (2571), bred by J. Griffiths, Crickmail, Pembroke; s Gold Medalist, s d by Prince Craft; with foal by Lone Song.

III. (23.)—MRS. J. O. MUNTZ, chestnut, **Bush Girl** (2872 N.P.S. Book), foaled 1907, bred by Captain R. Brassey, Cottes Brook, Northampton; s The Squire, d Wild Girl; with foal by Sea Bath.

CLASS 34.—*Mare or Gelding, exceeding 13.2 and not exceeding 15 hands, made or un-made, to be ridden. (10 entries.)*

I. (23.)—CAPTAIN J. D. GOULDSMITH, Ridley House, Kingswear, bay mare, **Morella 3rd**, 5 y.; s Bold Marco.

II. (25.)—A. PARTRIDGE & SONS, Mordref, Plympton, grey gelding, **Priority**, foaled 1917, bred by Miss Calmady-Hamlyn, Bidlake Veau, Bridestowe; s Marzio, d Griselda (2508 N.P.S.B.).

III. (23.)—MRS. J. O. MUNTZ, Foxhams, Horrabridge, chestnut gelding, **Robin**, foaled 1914, bred by — Baker, Launceston; s Irish Linen, s d Button Park,

R.—A. J. JACKMAN, Caprera Terrace, Plymouth, chestnut gelding, **Phizz**, 6 y.; s Irish Linen.

MEDAL (E).

GIVEN BY THE NATIONAL PONY SOCIETY.

A Silver Medal for the best Polo Pony Brood Mare in the Brood Mare Class, entered or eligible for entry in the National Pony Stud Book. This Medal was offered subject to Condition No. 51.

Medal.—MRS. J. O. MUNTZ, Foxhams, Horrabridge, Devon, chestnut, **Glory**; s St. Osmond; with foal by Lone Song.

R.—MRS. J. O. MUNTZ, chestnut, **Robbery** (2571), bred by J. Griffiths, Crickmail, Pembroke; s Gold Medalist, s d by Prince Craft; with foal by Lone Song.

HARNESS AND SADDLE.

CLASS 35.—*Mare or Gelding, under 15 hands, driven in harness on the 1st day of the Show. [9 entries.]*

I. (210.)—MRS. J. PUTNAM, Faringdon House, Exeter, brown mare, **Park Carnation**.

II. (25.)—S. LANGMAID, 29, Martin Terrace, Morice Town, Devonport, bay gelding, **Magio**.

III. (22.)—T. D. DEEBLE, 10, Market Avenue, Plymouth, chestnut with four white stockings, **Master Loffy**.

R.—S. H. JENKS, Pilsdon Manor, Whitechurch, Canonicorum, brown gelding, **Van D'Oyley**.

H.C.—P. SYMONS, Cotehele, St. Dominick, bay gelding, **Dandy**.

CLASS 36.—*Mare or Gelding, any height, for riding purposes, shown in saddle on the 1st day of the Show.* [10 entries.]

I. (£10.)—A. J. JACKMAN, Caprera Terrace, Plymouth, bay gelding, **Ramble.**

II. (£5.)—S. PETCH, Gainsborough House, Milborne Port, bay gelding, **Idalian.**

III. (£2.)—H.R.H. THE PRINCE OF WALES, K.G., York House, St. James's Palace, London, grey mare, **Ravla.**

R.—MISS V. WELLESLEY, Ford House, Churchinford, Somerset, roan mare, **The Phantom.**

CLASS 37.—*Mare or Gelding, 15 hands or over, driven in harness on the 2nd day of the Show.* [1 entry.]

I. (£10.)—S. LANGMAID, 29, Martin Terrace, Morice Town, Devonport, bay gelding, **Fitz Cadet.**

CLASS 38.—*Pony, not exceeding 13 hands, suitable for, and ridden by a child not over 14 years of age, on the second day of the Show.* [10 entries.]

A Whip was presented to the best Boy and best Girl Riders in this Class.

I. (£6.)—MRS. R. SIMMONS HODGE, Belmont, Devoran, Cornwall, dark brown mare, **Trixie.**

II. (£4.)—MRS. J. O. MUNTZ, Foxhams, Horrabridge, skewbald mare, **Patchwork.**

III. (£2.)—MRS. J. O. MUNTZ, grey mare, **Brushfield Bluet.**

IV. (£1.)—W. V. STEVENS, Julian Arms, Cadleigh Park, Iyybridge, black mare, **Toby.**

R.—MRS. J. O. MUNTZ, brown Dartmoor mare, **The Dart.**

H.C.—P. WHITTON (for Miss M. E. Whitton), Oakley House, Pinhoe, black mare, **Kitty.**—MASTER L. DORSE, Boxenhedge, Trull, Taunton, black gelding, **Little Joey.**

C.—A. B. WISNEY ROEBUCK, Hoo Meavy, Clearbrook, near Plymouth, black mare, **Black Beauty.**

CLASS 39.—*Weight-carrying Cob, not over 15 hands, to carry not less than 14 stone, shown in saddle on the 2nd day of the Show.* [6 entries.]

I. (£10.)—A. J. JACKMAN, Caprera Terrace, Plymouth, chestnut gelding, **Phizz.**

II. (£5.)—L. L. JONES, Newby, Bishops Hull, Taunton, bay mare, **Ladybird.**

III. (£2.)—C. N. SPOONER, Haslemere, Yelverton, bay mare, **Little Lady.**

R.—MISS J. L. C. PENNEY, Rogues Roost, Ashburton, brown gelding, **Pen Marco.**

CLASS 40.—*Mare or Gelding, any height, that had not previously won a First Prize at the Royal, Bath and West, Royal Hackney or Royal Counties Show, driven in harness on the 3rd day of the the Show.* [7 entries.]

I. (#10.)—S. LANGMAID, 29, Martin Terrace, Morice Town, Devonport, bay gelding, **Magic.**

II. (#5.)—I. R. DEEBLE, 10, Market Avenue, Plymouth, chestnut with four white stockings, **Master Lofly.**

III. (#2.)—S. H. JENKS, Pilsdon Manor, Whitechurch, Canonicorum, brown gelding, **Van D'Oyley.**

CLASS 41.—*Mare or Gelding, not exceeding 14.2 hands, ridden on the 3rd day of the Show.* [7 entries.]

I. (#10.)—CAPTAIN J. D. GOULDSMITH, Ridley House, Kingswear, bay mare, **Morella 3rd.**

II. (#5.)—MISS M. PUTNAM, Farringdon House, Exeter, piebald gelding, **Beauty.**

III. (#2.)—MRS. J. O. MUNTZ, Foxhams, Horrabridge, chestnut gelding, **Robin.**

R.—MISS J. HAMLYN, Hapstead, Buckfastleigh, bay mare, **Rainbeau.**

CLASS 42.—*Hack, 14 hands and not over 15.2, suitable for and ridden by a lady, on the 3rd day of the Show.* [8 entries.]

I. (#10)—MRS. J. O. MUNTZ, Foxhams, Horrabridge, bay mare, **Old Love.**

II. (#5.)—MRS. J. O. MUNTZ, chestnut gelding, **Robin.**

III. (#2.)—MISS V. WELLESLEY, Ford House, Churchinford, bright bay mare, **Cinderella.**

R.—A. J. JACKMAN, Caprera Terrace, Plymouth, chestnut gelding, **Emblem.**

CLASS 43.—*Tandems, Mares or Geldings, shown in harness, on the 4th day of the Show.* [1 entry.]

I. (#15)—J. PUTNAM, Farringdon House, near Exeter, bay geldings, **Buckley Fame and Melbourne Fire.**

CLASS 44.—*Pairs of Mares or Geldings, shown in harness on the 4th day of the Show.* [1 entry.]

I. (#15.)—J. PUTNAM, Farringdon House, near Exeter, bay geldings, **Buckley Fame and Melbourne Fire.**

CLASS 45.—*Mare or Gelding, not over 14 hands, driven in harness on the 5th day of the Show.* [5 entries.]

I. (£10.)—J. PUTNAM, Farringdon House, Exeter, bay gelding, **Buckley Fame.**

II. (£5.)—J. PUTNAM, bay gelding, **Melbourne Fire.**

III. (£2.)—S. LANGMAID, 29, Martin Terrace, Morice Town, bay gelding, **Magic.**

R.—P. SYMONS, Cotehole, St. Dominick, bay gelding, **Dandy.**

H.C.—VICTOR VINEGAR CO., LTD., 9, Union Terrace and Station Road, Plymouth, dark bay gelding, **Sir Iron.**

TRADESMEN'S CLASSES.

THE FIRST PRIZE IN CLASS 47 WAS OFFERED BY THE PLYMOUTH ROTARY CLUB, AND THE PRIZES IN CLASS 46 AND THE SECOND AND THIRD IN CLASS 47 WERE OFFERED BY THE PLYMOUTH LOCAL COMMITTEE.

CLASS 46.—*Light Mare or Gelding, the property of a Tradesman residing within a radius of four miles from the Guildhall, Plymouth, used solely by him for trade purposes for a period of not less than three months prior to June 1st, 1922, exhibited on the fifth day of the Show in the Trade Vehicle and Harness in which it had been worked for the same period.* [7 entries.]

I. (£10.)—POPHAMS, Bedford Street, Plymouth, bay, **Harkaway.**

II. (£4.)—VICTOR VINEGAR CO., 9, Union Terrace and Station Road, Plymouth, dark bay gelding, **Sir Iron.**

III. (£2.)—J. HAWKER & CO., bay gelding, **Lancer.**

R.—S. EARLE, JUN., Albert Road Dairy, Devonport, black mare, **Polly.**

V.H.C.—T. CUNDY & SON, 25, Benbow Street, Stoke, Devonport, dark brown mare, **Alert.**

H.C.—J. WILCOCKS, 52, Albert Road, Devonport, black, **Dolly.**

C.—POPHAMS, black, **Prince.**

CLASS 47.—*Cart Mare or Gelding, the property of a Tradesman or haulier carrying on business within a radius of four miles from the Guildhall, Plymouth, ditto, ditto.* [5 entries.]

I. (Silver Cup, Value £10 10s.)—PLYMOUTH CO-OPERATIVE SOCIETY, LTD., Frankfort Street, Plymouth, black gelding, **Little Tich.**

II. (£4.)—PLYMOUTH CO-OPERATIVE SOCIETY, LTD., bay gelding, **Prince.**

III. (£2.)—J. HITCHINS & CO., LTD., St. Mary Street, Stonehouse, Plymouth, brown gelding, **Prince.**

R.—S. T. GLYN, Pennycross Barton, brown mare.

H.C.—WEST OF ENGLAND JOINERY CO., LTD., Plymouth, black mare, **Darling.**

MEDAL (F).

GIVEN BY THE HACKNEY HORSE SOCIETY.

*A Silver Medal for the best Mare or Gelding exhibited in Single Harness in Classes 35 to 47 subject to Conditions 50.***I.**—S. LANGMAID, 29, Marton Terrace, Morice Town, Devonport, bay gelding, **Magic**.**R.**—VICTOR VINEGAR CO., LTD., Plymouth, dark bay gelding, **Sir Iron**.**JUMPING.****CLASS 48.**—*Mare or Gelding, any height, jumping over the course in the best form on the 1st day of the Show.* [18 entries.]**I. (£10.)**—CAPTAIN R. LAYE, The Warren, Wotton-under-Edge, grey gelding, **Hopalong**.**II. (£5.)**—F. ALLISON, Newbiggin, Penrith, Cumberland, brown mare, **Temptress**.**III. (£2.)**—A. E. MERRETT, Newent.**R.**—MRS. J. P. GLENCROSS, The Lodge, Battenhall Mount, Worcester, **Shamrock**.**CLASS 49.**—*Mare or gelding, under 14.2 hands, jumping over the course in the best form on the 1st day of the Show.* [10 entries.]**I. (£10.)**—MISS M. A. BULLOWS, Egbaston Riding School, Birmingham.**II. (£5.)**—F. C. STEPHENS, Hendra Farm, St. Dennis, St. Austell, brown mare.**III. (£2.)**—B. GREEN, Cardrew, Redruth, Cornwall, grey, **Tip Top**.**R.**—W. RAIL, Horse Trainer, Grampound Road, Cornwall, bay, **Monkey**.**CLASS 50.**—*Mare or Gelding, 15 hands and over, jumping over the course in the best form on the 2nd day of the show.* [12 entries.]**I. (£10.)**—F. ALLISON, Newbiggin, Penrith, Cumberland, brown mare, **Temptress**.**II. (£5.)**—CAPTAIN R. LAYE, The Warren, Wotton-under-Edge, bay mare, **Ludlow**.**III. (£2.)**—A. E. MERRETT, Newent, **Comrade**.**CLASS 51.**—*Mare or Gelding, under 15 hands, jumping over the course in the best form on the 2nd day of the Show.* [11 entries.]**Equal I. (£7 10s.)**—MISS M. A. BULLOWS, Edgbaston, Birmingham, **If Not**.**Equal I. (£7 10s.)**—C. DORSE, Boxenhedge, Trull, Taunton, chestnut mare, **Princess**.

III. (£2.)—F. C. STEPHENS, Hendra Farm, St. Dennis, St. Austell, brown mare.

R.—MASTER L. DORSE, Boxenhedge, Trull, Taunton, black gelding, **Little Joey**.

CLASS 52.—*Mare or Gelding, any height, jumping highest on the 3rd day of the Show.* [11 entries.]

Equal I. (£7 10s.)—J. HOUSE, Walkers, Boro' Bridge, Bridgwater, bay mare, **Pat**.

Equal I. (£7 10s.)—A. E. MERRETT, Newent.

III. (£2.)—F. ALLISON, Newbiggin, Penrith, Cumberland, brown mare, **Temptress**.

CLASS 53.—*Mare or Gelding, any height, jumping over the course in the best form on the 3rd day of the Show.* [23 entries.]

Equal I. (£7 10s.)—MRS. J. P. GLENCROSS, Battenhall Mount, Worcester, **Shamrock**.

Equal I. (£7 10s.)—MISS M. A. BULLOWS, Elgbaston, Birmingham, **It Not**.

Equal III. (£1.)—C. N. SPOONER, Haslemere, Yelverton, bay gelding, **Sunday**.

Equal III. (£1.)—F. ALLISON, Newbiggin, Penrith, brown mare, **Temptress**.

CLASS 253.—*Hunter Mare or Gelding, having competed in Classes 16 to 25 or 250 and 251, the property of a resident in Devon or Cornwall, points up to 50 per cent. of the total being given for the animal, and points up to 50 per cent. for jumping over the course on the 3rd day of the Show. Silver Cup, Value £21.* [5 entries.]

(Given by J. F. Winnicott, Esq., Mayor of Plymouth.)

I.—C. N. SPOONER, Haslemere, Yelverton, black gelding, **Satan**.

R.—J. PUTNAM, Faringdon House, Exeter, bay gelding, **Jorrocks**.

CLASS 54.—*Mare or Gelding, 15 hands and over, jumping over the course in the best form on the 4th day of the Show.* [14 entries.]

I. (£15.)—MRS. J. P. GLENCROSS, Battenhall Mount, Worcester, **Shamrock**.

II. (£7.)—CAPTAIN R. LAYE, The Warren, Wotton-under-Edge, bay mare, **Ludlow**.

III. (£3.)—F. ALLISON, Newbiggin, Penrith, brown mare, **Temptress**.

CLASS 55.—*Mare or Gelding, under 15 hands, jumping over the course in the best form on the 4th day of the Show.* [10 entries.]

I. (#15.)—B. GREEN, Cardrew, Redruth, grey, **Tip Top**.

II. (#7.)—W. RAIL, Grampound Road, bay, **Monkey**.

III. (#3.)—C. N. SPOONER, Haslemere, Yelverton, bay gelding, **Peter**.

CLASS 254.—*Pony Mare or Gelding, not exceeding 14.2 hands, the property of a resident within 30 miles of Plymouth, jumping over the course in the best form on the 4th day of the Show.* [4 entries.]

I. (#6.)—C. N. SPOONER, Haslemere, Yelverton, bay gelding, **Peter**.

CLASS 255.—*Pony Mare or Gelding, not exceeding 14.2 hands, the property of a resident within 30 miles of Plymouth, jumping over the course in the best form on the 5th day of the Show.* [2 entries.]

I. (#6.)—C. N. SPOONER, Haslemere, Yelverton, bay gelding, **Peter**.

II. (#3.)—C. N. SPOONER, bay gelding, **Little Lady**.

CLASS 56.—*Mare or Gelding, any height, jumping highest on the 5th day of the Show.* [8 entries.]

Equal I. (#7 10s.)—F. ALLISON, Newbiggin, Penrith, brown mare, **Temptress**.

Equal I. #7 10s.)—A. E. MERRETT, Newent, Glos., **Comrade**.

III. (#2.)—MASTER L. DORSE, Trull, Taunton, black gelding, **Little Joey**.

CHAMPION CLASS.

CLASS 57.—*Mare or Gelding, any height, having won a Prize in Classes 48 to 56 jumping over the course in the best form on the 5th day of the Show.* [4 entries.]

I. (#20.)—MRS. J. P. GLENCROSS, Battenhall, Worcester, **Shamrock**.

II. (#10.)—F. ALLISON, Newbiggin, Penrith, brown mare, **Temptress**.

III. (#5.)—CAPTAIN R. LAYE, The Warren, Wotton-under-Edge, bay mare, **Ludlow**.

CATTLE.

DEVON

(The Prizes in Class 58 and the First Prize in Class 59, were given by the Devon Cattle Breeders' Society).

CLASS 58.—*Devon Cow or Heifer, in Milk, Milked in the Ring before judging, under Conditions No. 61.* [9 entries.]

I. (210.)—J. H. CHICK, Wynford Eagle, Dorchester, Dorset, **Wynford Pill C** (292), born 23rd July, 1913; s Compton Moses (7015), d Wynford Pink (B353), s d Compton Rattler (6309).

II. (25.)—W. G. BUSK, Wraxall Manor, Dorchester, **Wraxall Bluebell A** (543), born 1915, bred by H. Gordie, Chilfrome, Dorchester.

III. (22.)—W. G. BUSK, **Wraxall Betty A** (542), born 1915, bred by J. Rowe, Musbury, Axminster.

R.—A. T. LORAM, Aylesbcare, Exeter, **Avercombe Rose** (27982), born 30th January, 1914, bred by F. W. Verney, Avercombe, Bishop's Nympton; s St. Matthew (7266), d Wilful 2nd C (132)

'CHALLENGE CUP.

GIVEN THROUGH THE DEVON COUNTY AGRICULTURAL ASSOCIATION.

By A. T. Loram, Esq., a silver Challenge Cup, for the best Devon Dairy Cow in Class 58. To be won three times in succession or any four times, before becoming the absolute property of the winner.

I.—J. H. CHICK, Wynford Eagle, Dorchester, Dorset, **Wynford Pill C** (292), born 23rd July, 1913; s Compton Moses (7015), d Wynford Pink (B353), s d Compton Rattler 6309).

CLASS 59.—*Devon Cow, in Milk, calved before 1919.* [8 entries.]

I. (210.)—C. MORRIS, Highfield, St. Albans and Bishop's Lydeard, Somerset, **Highfield Farthing 8th** (29398), born 26th December, 1916; s Highfield General (8105), d Highfield Farthing 5th (26925), s d Capton Bellringer (4911).

II. (25.)—T. BURROWS, Brook Farm, Uffculme, Devon, **Wescott Violet 4th** (33741), born 14th November, 1918, bred by J. Lewis, Wescott Farm, Burlescombe; s Crazelowman Defender (8813), d Wescott Primrose (29305), s d Longforth Mailbag (7439).

III. (22.)—MAJOR O. L. TRECHMANN, Westaway, Barnstaple, **Clampit Gay Lass 11th** (30724), born 3rd July, 1917, bred by W. Brent, Clampit, Callington, Cornwall; s Highfield Gem (8919), d Clampit Gay Lass 4th (24060), s d Lovely's Duke (6145).

R.—THE RIGHT HON. LORD CLINTON, Heanton Satchville, Dolton, North Devon, **Pink 3rd** (26581), born 2nd January, 1913; s The Thick 'Un (6224), d Pink (18171), s d Havelock (3895).

CLASS 60.—*Devon Heifer, in-Milk, calved in 1919.* [1 entry.]

I. (210.)—F. J. YENDELL, Upcott, North Molton, N. Devon, **Upcott Daisy 14th** (32490), born 1st February; s Pickwell Sir Frederick 2nd (9418), d Daisy 9th (25496), s d John Peel (6797).

CLASS 61.—*Devon Heifer, calved in 1920.* [9 entries.]

I. (210.)—C. MORRIS, Highfield, St. Albans and Bishop's Lydeard, Somerset, **Highfield Lottie 3rd** (33158), born 18th February; s Highfield Gauge (9689), d Highfield Lottie (27767), s d Longforth Mailbag (7439).

II. (25.)—F. SHEARMAN, Stoodleigh Court, Tiverton, Devon, **Pickwell Curly Coat**, born 10th April, bred by Major G. M. Styles, Pickwell, Braunton, Devon; s Pickwell Jacob 3rd (10250), d Pickwell Thick, s d Coroner (7648).

III. (22.)—W. IRISH, Chapel Hill, North Petherton, Bridgwater, **Julia** (34103), born 30th June; s Crazelowman Defender (8813), d Dainty 8th (29701), s d Cutsey Gordon (8004).

R.—R. SALTER, Norton Farm, Newton St. Cyres, Exeter, **Laburnum 2nd** (33303), born 5th March; s Rocknell Old Sort (10309), d Laburnum (31393), s d Count Romulus (7995).

V.H.C.—H.M. THE KING, The Royal Farms, Windsor, **Windsor's Flirt**, born 23rd June; s Windsor's Captain (8325), d Cothelstone Fallacy (24294), s d Macaroon (5856).

H.C.—THE RIGHT HON. LORD CLINTON, Heanton Satchville, Dolton, North Devon, **Lady Huish 8th** (32738), born 25th January; s General Robertson (9296), d Lady Huish 2nd (24961), s d Broad Arrow 3rd (5968). —W. E. MENHINICK, Hendra, St. Kew, Wadebridge, Cornwall, **Hendra Buttercup 3rd** (33103), born 14th March; s Upcott Bungy (9878), d Hendra Buttercup (29357), s d Clansman (7980).

CLASS 62.—*Devon Heifer, calved in 1921.* [15 entries.]

I. (210.)—A. POPE, Henstill, Sandford, Crediton, Devon, **Sandford Curly's Belle** (Vol. 45), born 10th January; s Burlescombe Ruby King (10459), d Sandford Curly 8th (31327), s d Barum Duke (8355).

II. (25.)—H.R.H. THE PRINCE OF WALES, K.G., Duchy Home Farm, Stoke Climsland, **Coombeshead Cowalip**, born 16th January; s Clamptit Gay Laddie (9197), d Coombeshead Daisy 1st (28033), s d Lord Daws 12th (7180).

III. (22.)—E. CRATWORTHY, Cutsey, Trull, Taunton, **Cutsey Betsy**, born 12th March; s Overton Favourite (9797), d Young Betsy (entered Vol. 45), s d Holcombe Major (7412).

R.—W. J. HUXTABLE, Marsh, Wrafton, Barnstaple, **Marsh Pansy 3rd** (34098), born 1st April; s Holcombe Orthodox (10630), d Northmoor Pansy, s d Heatherton K.C. (8089).

V.H.C.—H.R.H. THE PRINCE OF WALES, **Coombeshead Beauty 1st**, born 15th May; s Coombeshead Senator (10495), d Coombeshead Daisy (31586), s d Highfield Gem (8919).—C. MORRIS, Highfield, St. Albans and Bishops

Lydeard, Somerset, **Highfield Gay Girl 7th** (34222), born 21st January; s Highfield Gauge (9689), d Highfield Gay Girl 3rd (30350), s d Highfield General (8105).

H.C.—W. BRENT & SON, Clampit, Callington, Cornwall, born 12th May; s Highfield Gem (8919), d Clampit Nun 2nd (28916), s d Ford Plumper (7381).

CLASS 63. —*Devon Bull, calved before 1920.* [5 entries.]

I. (210.)—G. C. SKINNER, Pound, Bishop's Lydeard, **Pound Larker** (10282), born 18th June, 1918, bred by Mrs. A. C. Skinner & Son, Pound, Bishops Lydeard; s Holcombe Admiral (7411), d Pound Laurel 2nd (28723), s d Lortwich Don (6448).

II. (25.)—E. CLATWORTHY, Cutsey, Trull, Taunton, **Overton Goldcoin** (9410), born 13th July, 1916, bred by J. L. Huxtable, Overton, Bishop's Tawton, Barnstaple; s Overton Goldring (8613), d Overton Myrtle 2nd (25912), s d Stockleigh Masterpiece (6548).

III. (22.)—C. L. HANCOCK, The Manor House, Cothelstone, Taunton, **Fiddington Duke** (10542), born 5th April, 1919, bred by E. G. Triggol, Fiddington, Bridgwater; s Cazelowman Gold Dust (9625), d Beauty (24050), s d Don Juan (4965).

R.—A. M. WILLIAMS, Werrington Park, Launceston, Cornwall, **Roadwater Goldfinder** (10738), born 29th November, 1918, bred by A. J. Hill, Roadwater, Washford, Taunton; s Lovely's Duke 6th (8965), d Goldencup 79th (28411), s d Lovely's Duke 5th (8573).

H.C.—J. LEWIS, Kensington, Washfield, Tiverton, **Westcott Leader**, born 21st November, 1917, bred by J. Lewis, Westcott Farm, Burlcombe; s Holcombe Emperor (8042), d Rentfinder 9th (28305), s d Gotton Herald (8069).

CLASS 64.—*Devon Bull, calved in 1920.* [9 entries.]

I. (210.)—C. L. HANCOCK, The Manor House, Cothelstone, Taunton, **All Right** (10832), born 8th January; s All But (9935), d Cothelstone Redstart (30100), s d Commander (7646).

II. (25.)—W. HEYWOOD, Whitefield Farm, Wiveliscombe, Somerset, **Heatherton Rob Roy** (11040), born 25th March, bred by J. A. and M. A. Beedell, Heatherton, Bradford, Taunton; s Heatherton Overseer (9683), d Heatherton Fancy 15th (28901), s d Roadwater Milkman (8247).

III. (22.)—W. J. HUXTABLE, Marsh Wrafton, Barnstaple, **Ham Mill Cowboy** (11020), born 8th January, bred by F. Stanbury, Ham Hill, Werrington, Launceston; s Woodland's Cowboy (9526), d Johanna 3rd (29593), s d Pound Delegate 3rd (8210).

R.—E. CLATWORTHY, Cutsey, Trull, Taunton, **Cutsey Peer** (10974), born 4th May; s Gortnell Giant (10555), d Primrose 4th (32015), s d Holcombe Cash Box (8545).

H.C.—THE RIGHT HON. LORD CLINTON, Heanton Satchville, Dolton, North Devon, **Pound Duke** (11179), born 18th January, bred by Mrs. A. C. Skinner

and Son, Pound, Bishop's Lydeard; s Woodlands Favourite (9140), d Pound Duchess 12th (29558), s d Dairyman (7040).—C. MORRIS, Highfield, St. Albans, and Bishops Lydeard, Somerset, **Highfield Reminder 3rd** (11069), born 8th February; s Highfield Gem 2nd (9329), d Highfield Farthing 2nd (22890), s d Pound Bellringer (5617).

CLASS 65.—*Devon Bull, calved in 1921.* [15 entries.]

I. (#10.)—C. MORRIS, Highfield, St. Albans, and Bishop's Lydeard, Somerset, **Highfield Overseer** (Vol. 45), born 12th January; s Highfield Gauge (9689), d Highfield Alice (30336), s d Highfield General (8105).

II. (#5.)—H.R.H. THE PRINCE OF WALES, K.G., Duchy Home Farm, Stoke Climsland, **Coombeshead Grand Knight**, born 6th May; s Highfield Gem (8919), d Clampit Gladstone 3rd (29768), s d Ford Plumper.

III. (#2.)—W. BRENT & SON, Clampit, Callington, Cornwall, born 11th January; s Highfield Gem (8919), d Clampit Gay Lass 5th (27308), s d Ford Plumper (7381).

R.—A. M. WILLIAMS, Werrington Park, Launceston, Cornwall, **Werrington Klondyke**, born 1st January; s Roadwater Goldfinder (10738), d Wellingcott, s d Pickwell Duke (8619).

V.H.C.—J. W. BUSSELL, Town Farm, Gittisham, Honiton, **Town Peerless**, born 17th January; s Halsend Artful (9304), d Prettymaid 5th (26490), s d Merry's Boy (6456).

H.C.—MAJOR O. L. TRECHMANN, Westaway, Barnstaple, **Westaway Jacob**, born 19th February; s Pickwell Jacob 3rd (10250), d Curly Coat 3rd, s d Stockleigh Masterpiece (6548).

CHAMPION PRIZE.

GIVEN BY THE DEVON CATTLE BREEDERS' SOCIETY.

Best Animal exhibited in Classes 58 to 65

I. (#10.)—G. C. SKINNER, Pound, Bishops Lydeard, **Pound Larker** (10282), born 18th June, 1918, bred by Mrs. A. C. Skinner & Son, Pound, Bishops Lydeard; s Holcombe Admiral (7411), d Pound Laurel 2nd (28723), s d Lortwich Don (6448).

R.—C. MORRIS, Highfield, St. Albans and Bishops Lydeard, Somerset, **Highfield Farthing 8th** (29398), born 26th December, 1916; s Highfield General (8105), d Highfield Farthing 5th (26925), s d Capton Bellringer (4911).

CHALLENGE CUPS.

By Major A. C. Morrison-Bell, M.P., a Silver Challenge Cup for the best Pedigree Devon Bull exhibited in Classes 63, 64 and 65. To be won by the Exhibitor three times in succession, or any four times before becoming the absolute property of the winner.

I.—G. C. SKINNER, Pound, Bishops Lydeard, **Pound Larker** (10282), born 18th June, 1918, bred by Mrs. A. C. Skinner & Son, Pound, Bishops Lydeard;

s Holcombe Admiral (7411), d Pound Laurel 2nd (28723), s d Lortwich Don (6448).

R.—C. L. HANCOCK, The Manor House, Cothelstone, Taunton, **All Right** (10832), born 8th January; s All But (9935), d Cothelstone Redstart (30100), s d Commander (7646).

By J. Putnam, Esq., a 30-Guinea Challenge Cup for the best Group of Devon Cattle (one male and two females) exhibited in the Devon Classes. At least two of the Group must have been bred by the Exhibitor. To be won three times in succession, or any four times, before becoming the absolute property of the winner.

I.—C. MORRIS, Highfield, St. Albans, and Bishops Lydeard, Somerset. **Highfield Farthing 8th** (29398), born 26th December, 1916; s Highfield General (8105), d Highfield Farthing 5th (26925), s d Capton Bellinger (4911).—**Highfield Lottie 3rd** (33158), born 18th February; s Highfield Gauge (9689). d Highfield Lottie (27767), s d Longforth Mailbag (7439).—**Highfield Overseer** (Vol. 45), born 12th January; s Highfield Gauge (9689), d Highfield Alice (30336), s d Highfield General (8105).

R.—E. CLATWORTHY, Cutsey, Trull, Taunton, **Cutsey Curry** (32703), born 17th January; s Overton Goldcoin (9410), d Cedar (23668), s d St. George (5657).—**Cutsey Betsy**, born 12th March; s Overton Favourite (9797), d Young Betsy (entered Vol. 45), s d Holcombe Major (7412).—**Overton Goldcoin** (9410), born 13th July, 1916, bred by J. L. Huxtable, Overton, Bishop's Tawton, Barnstaple; s Overton Goldring (8613), d Overton Myrtle 2nd (25912), s d Stockleigh Masterpiece (6548).

SOUTH DEVON

(£30 towards the Prizes in Classes 66 to 73 were given by the South Devon Herd Book Society).

CLASS 66.—*South Devon Cow or Heifer, in-Milk, milked in the Ring before Judging, under Condition No. 61. [4 entries.]*

I. (210).—G. BANBURY, Stanton Barton, Marlton, Paignton, **Buttercup** (13036), born 8th August, 1913, bred by H. Pearce, Butlas, Plympton; s Victor (4236), d Dora (11253), s d Ben (2817).

CHALLENGE CUP.

GIVEN BY PERCY WITTON, ESQ.

A Silver Challenge Cup, for the best South Devon Dairy Cow in Class 66. To be won three times in succession, or any four times, before becoming the absolute property of the winner.

I.—G. BANBURY, Stanton Barton, Marlton, Paignton, **Buttercup** (13036), born 8th August, 1913, bred by H. Pearce, Butlas, Plympton; s Victor (4236), d Dora (11253), s d Ben (2817).

CLASS 67.—*South Devon Cow, in-Milk, calved before 1919.* [10 entries.]

I. (#10.)—R. W. CHAFFE, Worswell Barton, Revelstoke, South Devon, **Worswell Profit** (16478), born 24th July, 1916; s Pamflete Dairyman (4509), d Worswell Primrose Girl (11383), s d Peter the Piper (3842).

II. (#5.)—B. LUSCOMBE, Bowden, Yealmpton, **Bowden Fidget 2nd** (16942), born 20th October, 1916; s C'barswell Yellow Boy (4014), d Fidget (9261).

III. (#2.)—R. SKINNER, Stretchford, Buckfastleigh, **Alice** (20507), born 14th May, 1918; s Molenick Monarch (4979), d Careless 13964), s d Well Bred (4647).

R.—LIEUT.-COLONEL THE RIGHT HON. F. B. MILDMAY, M.P., Flete, Ivybridge, **Lilly 7th** (15591), born 27th January, 1915; s Bickham Beauty (4280), d Lilly 4th (11826), s d The King (1383).

V.H.C.—B. LUSCOMBE, **Bowden Maggie**, born 20th May, 1917; s Cherry King (5306), d Maggie (11033).

H.C.—R. SKINNER, **Sally 2nd** (17424), born 15th April, 1916; s Pamflete Master (3836), d Sally (12012), s d President (3256). J. S. WROTH, Coombe, Aveton Gifford, **Cowslip 5th** (19260), born 18th July, 1917; s Widland Perfection (5217), d Cowslip 2nd (9688), s d Saltram (1220).

CLASS 68.—*South Devon Heifer, in-Milk, calved in 1919.* [4 entries.]

I. (#10.)—LIEUT.-COLONEL THE RIGHT HON. F. B. MILDMAY, M.P., Flete, Ivybridge, **Highland's Wallflower** (21803), born 18th June, bred by Mrs. J. Bayly, Highlands, Ivybridge; s Lilian Champion (6016), d Bring Good (17057), s d Worswell Hero (5224).

II. (#5.)—R. W. CHAFFE, Worswell Barton, Revelstoke, South Devon, **Cherry 3rd** (22562), born 19th April, bred by H. Wroth, jun., Newton Ferrers, near Plymouth; s Painsford Russell (6688), d Cherry (11372), s d Prince Danilo 2nd (3532).

III. (#2.)—A. SOPER & SONS, Gerston, Totnes, **Orange Girl** (22220), born 12th February; s Duke (6504), d Lucy 7th (14061), s d Kingston God (4429).

R.—H. CHAFFE, Harestone, Brixton, near Plymouth, **Worswell Gladys 11th**, born 2nd July; s Widland Champion, d Worswell Gladys 4th, s d Merafield Royal Star.

CHALLENGE CUP.

GIVEN BY THE PRESIDENT (H.R.H. THE PRINCE OF WALES, K.G.).

A Silver Challenge Cup for the best Cow, in Milk, in the South Devon Classes, to be won three times in succession, or four times altogether, before becoming the property of the Winner.

I.—R. W. CHAFFE, Worswell Barton, Revelstoke, South Devon, **Worswell Profit** (16478), born 24th July, 1916; s Pamflete Dairyman (4509), d Worswell Primrose Girl (11383), s d Peter the Piper (3842).

R.—LIEUT.-COLONEL THE RIGHT HON. F. B. MILDMAY, M.P., Flete, Ivybridge, **Highland's Wallflower** (21803), born 18th June, bred by Mrs. J. Bayly, Highlands, Ivybridge; s Lilian Champion (6016), d Bring Good (17057), s d Worswell Hero (5224).

CLASS 69.—*South Devon Heifer, calved in 1920.* [7 entries.]

I. (410.)—LIEUT.-COLONEL THE RIGHT HON. F. B. MILD MAY, M.P., Flete Ivybridge, **Flete Pink** (23515), born 28th January; s Random (7315), d Pink (15592), s d Bickham Beauty (4280).

II. (45.)—J. S. WROTH, Coombe, Aveton Gifford, **Snowdrop 5th** (24355), born 20th March; s Napoleon 12th (6658), d Snowdrop 4th (16323), s d Silver Royal (2771).

III. (42.)—J. C. P. HARVEY, Pamflete, Holbeton, near Plymouth, **Acorns 2nd**, born 25th April; s Coleridge Napoleon 4th (7644), d Pamflete Acorns (19807), s d Pamflete N.B. (6092).

R. R. SKINNER, Stretchford, Buckfastleigh, **Karlick** (23918), born 1st May; s (olderidge Monarch (6472), d Karlie Stretche 2nd (15420), s d Herneford (4412).

V.H.C.—G. BANBURY, Stanton Barton, Marldon, Paignton, **Stanton Crescent** (22620), born 6th June; s Elwell Masher (7726), d Crescent (13897), s d Manager (2173).

H.C.—MAJOR H. R. FOX, S. Battisborough, Holbeton, near Plymouth, **Gwen** (23017), born 3rd July; s Bulleigh Captain (5331), d Sweet Rose (15230), s d Bickham Beauty (4280).

CLASS 70.—*South Devon Heifer, calved in 1921.* [12 entries.]

I. (410.)—LIEUT.-COLONEL THE RIGHT HON. F. B. MILD MAY, M.P., Flete, Ivybridge, **Flete Countess 2nd**, born 21st February; s General (7757), d Countess 2nd (18522), s d Lilian's Champion (6016).

II. (45.)—J. LUSCOMBE, Manor Farm, North Huish, South Brent, **Manor Butter Cup**, born 24th March; s Mothercombe Laddie (7935), d Butter Cup 6th (20011), s d Brownston Laddie (4774).

III. (42.)—W. C. BICE, Nanswhyden, St. Colomb, **Joy 2nd**, born 1st July; s Bowden Cherry Boy (6979), d Joy (19335), s d Molenick Monarch (4979).

R.—S. EVERY, Tinnell, Landulph, Hatt, Cornwall, **Tinnel Beauty**, born 31st March; s Worswell Adjutant (8222), d Curly 6th (13831), s d King Lear (4426).

V.H.C.—H. J. HANNAFORD, Buckland Barton, Newton Abbot, **Buckland Pearl**, born 6th March; s Bawn (7543), d Ruby 20th (9780), s d Hacombe Hero (2902).—H. J. HANNAFORD, **Buckland Charm**, born 22nd January; s Baron (7543), d Kitty 4th (11020), s d Ranter (3004).—J. C. P. HARVEY, Pamflete, Holbeton, near Plymouth, **Suffragette 4th**, born 23rd February; s Coleridge Napoleon 4th (7644), d Suffragette (15320), s d Worswell Right Sort (5228).—J. S. WROTH, Coombe, Aveton Gifford, **Star 15th**, born 17th January; s Napoleon 12th (6658), d Star (12250), s d Saltram (1220).

H.C.—SIR C. KENDALL-BUTLER, K.B.E., J.P., Bourton House, Shrivensham, Berks, **Bourton Eleanor**, born 18th January; s Battisborough Baronet (6364), d Daisy (16271), s d Pamflete Perfection 2nd (4514).—A. SOPER & SONS, Gerston, Totnes, **Gerston Pride**, born 1st May; s Ford No. 2 (7746), d Julia 10th (18952), s d Molenick Monarch. —J. S. WROTH, **Favourite 10th**, born 20th January; s Napoleon 12th (6658), d Favourite 8th (19261), s d Widland Perfection (5217).

SPECIAL PRIZE.

A Silver Cup, value £10, by Sir Henry Lopes, Bart., for the best Exhibit in Classes 69 and 70.

I.—LIEUT.-COLONEL THE RIGHT HON. F. B. MILDMAI, M.P., Flete, Ivy-bridge, **Flete Countess 2nd**, born 21st February; s General (7757), d Countess 2nd (18522), s d Lillian's Champion (6016).

R.—LIEUT.-COLONEL THE RIGHT HON. F. B. MILDMAI, M.P., **Flete Pink** (23515), born 28th January; s Random (7315), d Pink (15592), s d Bickham Beauty (4280).

CHALLENGE CUP.

A Silver Challenge Cup, value 30 Guineas, was given by the South Devon Herd Book Society, for the best Cow or Heifer in the South Devon Herd Book, open to Members of the South Devon Herd Book Society. The Cup to be won three times in succession, or any four times, before becoming the absolute property of the winner.

I.—LIEUT.-COLONEL THE RIGHT HON. F. B. MILDMAI, M.P., Flete, Ivy-bridge, **Flete Countess 2nd**, born 21st February; s General (7757), d Countess 2nd (18522), s d Lillian's Champion (6016).

R.—LIEUT.-COLONEL THE RIGHT HON. F. B. MILDMAI, M.P., **Flete Pink** (23515), born 28th January; s Random (7315), d Pink (15592), s d Bickham Beauty (4280).

CLASS 71.—*South Devon Bull, calved before 1920. [5 entries.]*

I. (#10.)—B. LUSCOMBE, Bowden, Yealmpton, **Bowden Strawberry Boy** (6988), born 1st January, 1917; s Coarswell Yellow Boy (4014), d Strawberry 2nd (11741).

II. (#5.)—H. MORGAN, Longclose Barton, Kingsbridge, **Longclose Monarch 1st**, born 20th September, 1916; s Longclose Monarch 1st (6612), d Molly 5th (10917), s d Woodleigh Councillor (3630).

III. (#2.)—J. S. WROTH, Coombe, Aveton Gifford, **Lavender's Boy 2nd** (6001), born 23rd September, 1916, bred by J. Wakeham, Ley, North Huish; s Coleridge King (3700), d Lavender (6843), s d Hard Luck (1890).

R.—T. W. LUSCOMBE, Great Englebourne, Totnes, **Worswell Peace Day** (8228), born 11th November, 1918, bred by R. and H. Chaffe, Worswell Barton, Revelstoke; s Forbisher (5423), d Worswell Phyllis (13667).

V.H.C.—G. BANBURY, Stanton Barton, Marldon, Paignton, **Granby** (8499), born 7th January, 1919, bred by P. Lace, Court Barton, Lamerton, Tavistock; s Nero (7250), d Primrose 2nd-(15459), s d Court Good Sort (4833).

CLASS 72.—*South Devon Bull, calved in 1920. [8 entries.]*

I. (#10.)—R. BASKERVILLE, Keaton Farm, Holbeton, near Plymouth, **Keaton Perfection** (9244), born 16th April; s Bulleigh Captain (5331), d Curly 9th (17025), s d Rew Starlight (3873).

II. (25.)—R. W. CHAFFE, Worswell Barton, Revelstoke, South Devon, **Worswell Bill**, born 2nd June ; s Widland Champion (6874), d Worswell Betty (16472), s d Pamflete Dairyman (4509).

III. (22.)—R. SKINNER, Stretchford, Buckfastleigh, **Victory 4th** (9563), born 25th September, bred by J. M. Peeke & Son, Hernafor, Harbertonford ; s Sparkwell Victory (8055), d Betty (18665).

E.—P. LUCE, Court Barton, Lamerton, Tavistock, Devon, **Captain**, born 25th May, bred by F. J. Wintle, Keynedon Barton, Kingsbridge ; s Napoleon 20th (7248), d Snowdrop 2nd (17724).

V.H.C.—F. VIGGERS & SONS, Woodford Farm, Plympton, South Devon, **Prawle Rentpayer** (9388), born 7th January, bred by L. A. Oldrieve, West Prawle, Kingsbridge ; s Bowden Strawberry Boy (6988A), s d Dahlia (13596).

CLASS 73.—*South Devon Bull, calved in 1921.* [7 entries.]

I. (210.)—LIEUT.-COLONEL THE RIGHT HON. F. B. MILD MAY, M.P., Flete, Ivybridge, **Flete President**, born 4th April ; s Worswell President (6910), d Lilian's Favourite (20112), s d Warrior (6299).

II. (25.)—J. C. P. HARVEY, Pamflete, Holbeton, near Plymouth, **Pamflete Silverlight**, born 1st March ; s Coleridge Napoleon 4th (7644), d Downham 3rd (18202), s d Coulston Rival (5845).

III. (22.)—J. LUSCOMBE, Manor Farm, North Huish, South Brent, **Manor Laddie**, born 20th March ; s Mothecombe Laddie (7935), d Bouquet 6th (14133), s d Langston King (4434).

E.—B. LUSCOMBE, Bowden, Yealmpton, **Bowden Prince** (E.E.), born 26th April ; s Bowden Strawberry Boy (6988), d Bowden Worswell Cherry (12831).

V.H.C.—H. J. KINGWELL, Bow Grange, Totnes, Devon, **Bow Grange Dandy**, born 27th July ; s Dandy's Lad (8428), d Bow Grange Saffron (14096), s d Ley Marquis (2941).

CHALLENGE CUPS.

GIVEN BY MAJOR E. F. MORRISON-BELL.

A Silver Challenge Cup, for the best Pedigree South Devon Bull exhibited in Classes 71, 72 and 73, to be won by the Exhibitor three times in succession, or any four times, before becoming the absolute property of the winner.

I.—B. LUSCOMBE, Bowden, Yealmpton, **Bowden Strawberry Boy** (6988), born 1st January, 1917 ; s Coarswell Yellow Boy (4014), d Strawberry 2nd (11741).

E.—R. BASKERVILLE, Keaton Farm, Holbeton, near Plymouth, **Keaton Perfection** (9244), born 16th April ; s Bulleigh Captain (5331), d Curly 9th (17025), s d Rew Starlight (3873).

GIVEN THROUGH THE DEVON COUNTY AGRICULTURAL ASSOCIATION.

A Silver Challenge Cup, value 30 Guineas, presented by His Royal Highness the Prince of Wales, for the best Group of South Devon Cattle (one male and two females) exhibited in the South Devon Classes. At least two of the Group must have been bred by the Exhibitor. To be won three times in succession, or any four times, before becoming the absolute property of the winner.

I.—**B. LUSCOMBE**, Bowden, Yealmpton, **Bowden Maggie**, born 20th May, 1917; s **Cherry King** (5306), d **Maggie** (11033).—**Bowden Fidget 2nd** (16942), born 20th October, 1916; s **Coarswell Yellow Boy** (4014), d **Fidget** (9261).—**Bowden Strawberry Boy** (6988), born 1st January, 1917; s **Coarswell Yellow Boy** (4014), d **Strawberry 2nd** (11741).

R.—**LIEUT.-COL. THE RIGHT HON. F. B. MILD MAY, M.P.**, Flete, Ivybridge, **Highland's Wallflower** (21803), born 18th June, bred by **Mrs. J. Bayly**, Highlands, Ivybridge; s **Lilian Champion** (6016), d **Bring Good** (17057), s d **Worswell Hero** (5224).—**Flete Countess 2nd**, born 21st February; s **General** (7757), d **Countess 2nd** (18522), s d **Lilian's Champion** (6016).—**Flete President**, born 4th April; s **Worswell President**, (6910), d **Lilian's Favourite** (20112), s d **Warrior** (6299).

A Silver Cup, value 5 Guineas, by the "Western Morning News and Mercury," for the best Beast in the South Devon Classes, the owner to be a Member of the Devon Farmers' Union. To be won twice in succession, or any three times, before becoming the absolute property of the winner.

I.—**R. W. CHAFFE**, Worswell Barton, Revelstoke, South Devon, **Worswell Profit** (16478), born 24th July, 1916; s **Pamflete Dairyman** (4509), d **Worswell Primrose Girl** (11383), s d **Peter the Piper** (3842).

R.—**G. BANBURY**, Stanton Barton, Marldon, Paignton, **Buttercup** (13036), born 8th August, 1913, bred by **H. Pearce**, Butlas, Plympton; s **Victor** (4236), d **Dora** (11253), s d **Ben** (2817).

SHORTHORN.

CLASS 74.—*Shorthorn Cow, in-Milk, calved before 1919. [4 entries.]*

I. (£10.)—**L. V. GARLAND**, Greenbank, The Towans, Hayle, roan, **Hayle Beauty Sleep 4th**, born 20th November, 1918, bred by **W. J. Hosken**; s **Clipper Comet** (135764), d **Beauty Sleep** (Vol. 58, p. 678), s d **Golden Cloud** (108751).

II. (£5.)—**H.R.H. THE PRINCE OF WALES, K.G.**, Home Farm, Stoke Climsland, roan, **Climsland Lady Dorothy 3rd**, born 22nd May, 1917; s **Collynie Red Knight** (124849), d **Climsland Lady Dorothy 2nd**, s d **Nicholas of Cluny** (116746).

III. (£2.)—**SIR CLIFFORD CORY, Bart., M.P., D.L.**, Llantarnam Abbey, Monmouthshire, light roan, **Lady Cressida**, born 21st February, 1918, bred by **J. Moffat**, Spital, Kendal; s **Merry Prince** (137985), d **Watercrook Cress**, s d **Lord Nottingham** (116317).

CLASS 75.—*Shorthorn Heifer, in-Milk, calved in 1919.*—*First prize, £10—second, £5—third, £2.*

[NO ENTRY.]

CLASS 76.—*Shorthorn Heifer, calved in 1920.* [5 entries.]

I. (£10.)—H.M. THE KING, The Royal Farms, Windsor, red, **Windsor Broadhooks**, born 21st February; s Eclipse of Collynie (136344), d Doune Broadhooks 5th, s d Dunglass Brilliant (120003).

II. (£5.)—H.R.H. THE PRINCE OF WALES, K.G., Home Farm, Stoke Climsland, roan, **Queen Marion**, born 2nd March; s Edgcote Count (136364), d Adbolton Marios Queen 3rd, s d King Christian of Denmark (86316).

III. (£2.) C. E. GUNTHER, Tongswood, Hawkhurst, Kent, roan, **Tongswood Lavender 3rd**, born 21st April; s Tongswood Bassoon (145942), d Lavender 68th, s d Lord Morley (126618).

R.—H. C. SUTTON, Benham Park, Newbury, Berks, red and little white, **Benham Duchess**, born 16th June; s Benham Norseman (147236), d Benham Groat, s d Fairlawne Maxtone (130929).

CLASS 77.—*Shorthorn Heifer, calved in 1921.* [12 entries.]

I. (£10.)—H.R.H. THE PRINCE OF WALES, K.G., Home Farm, Stoke Climsland, roan, **Maid Marion**, born 8th February; s Butterfly Knight (130029), d Adbolton Marios Queen 3rd, s d King Christian of Denmark (86316).

II. (£5.)—MAJOR J. A. MORRISON, D.S.O., Basildon Park, Goring, Reading, Berks, red roan, **Basildon Augusta 4th**, born 23rd March; s Norman (150813), d Basildon Augusta (Vol. 64), s d Windsor Lad (113735).

III. (£2.)—L. V. GARLAND, Greenbanks, The Towans, Hayle, red, **Towan Rose** (G.L.V. '2), born 20th April; s Anderson's Heir (153348), d Moss Rose 3rd (Vol. 64, p. 1008), s d Bartliver King (118885).

R.—MAJOR J. A. MORRISON, D.S.O., roan, **Basildon Fairy Rosebud**, born 27th January; s Collynie Grand Prince (154921), d Fairy Rosebud (Vol. 63), s d Notlaw Bonaparte (121824).

V.H.C.—H.R.H. THE DUKE OF CORNWALL, K.G., Marsh Farm, Landulph, East Cornwall, roan, **Waterloo Lady 44th**, born 2nd January; s Hindley Royalist, d Waterloo Lady 43rd, s d Royal Pippin.

H.C.—L. V. GARLAND, red (little white), **Towan Gwynne 2nd** (G.L.V. '5), born 6th May; s Butterfly Leader (154520), d Hayle Gwynne 12th (Vol. 65, p. 867), s d Clipper Comet (135764).

CLASS 78.—*Shorthorn Bull, calved in 1918 or 1919.* [4 entries.]

I. (£10.)—C. E. GUNTHER, Tongswood, Hawkhurst, Kent, white, **Tongswood Bequest** (159997), born 17th March, 1919; s Knight Lavender (121046), d Tongswood Bessie 3rd, s d Knight Lavender (121046).

II. (£5.)—H. C. SUTTON, Benham Park, Newbury, Berks, roan, **Proud Augusta** (151245), born 22nd December, 1918, bred by Lord Sherborne, Sherborne, Gloucester; s Moonlight (126984), d Sherborne Augusta, s d Edgcote Promotion (111682).

III. (22).—MAJOR H. L. HAVERS, Little Hele, South Molton, North Devon, roan, **Darling King** (155233, Vol. 66, p. 126), born 1st February, 1919, bred by Mr. Tyner; s Furbelow King (136617), d Salmon's Darling 14th, s d Salmon's Dairy Prince (117593).

CLASS 79.—Shorthorn Bull, calved in 1920. [7 entries.]

I. (210).—SIR F. H. BATHURST, BART., Somborne Park, Stockbridge, Hants, roan, **Basildon Lancer**, born 17th January, bred by Major J. A. Morrison, D.S.O., Basildon, Pangbourne; s Edgcote Albion (142205), d **Lavender Wreath**, s d Coming Storm (108242).

II. (25).—H.R.H. THE DUKE OF CORNWALL, K.G., Marsh Farm, Landulph, East Cornwall, roan, **Lavender Royal**, born 5th October; s Crocus Courtier, d Lady Lenton Lavender, s d Gipsy King.

III. (22).—MRS. E. JEWELL, Ide Hill, Henden Manor, Sevenoaks, Kent, red, **John of Stonelands** (164319), born 23rd March, bred by J. and N. N. Lee, Stonelands, Arncliffe, Skipton-in-Craten, Yorks; s Cluny Gold Mint (141655), d Augusta 138th, s d Collynie Favourite (135818).

R.—A. L. CHRISTIE, Tapley Park, Instow, North Devon, **Tapley Surprise Packet**, born 28th December; s Badminton Bertie (146842), d Shenstone Clara 2nd, s d Scottie (133446).

CLASS 80.—Shorthorn Bull, calved in 1921. [8 entries.]

I. (210).—H.R.H. THE PRINCE OF WALES, K.G., Home Farm, Stoke Climsland, white, **King's Messenger**, born 10th May; s Christian King (147900), d Myrtle's Dandy, s d Collynie Premier (124847).

II. (25).—G. A. WILLS, Langford Court Farm, Langford, near Bristol, white, **Rickford Boxer**, born 1st February; s Collynie Royal Regent (148043), d Lady Marcella, s d Notlaw Boxer (127158).

III. (22).—H.M. THE KING, The Royal Farms, Windsor, roan, **Windsor Favourite**, born 8th June; s Royal Gauntlett (159046), d Windsor Roseleaf, s d Notlaw Boxer (127158).

R.—SIR F. H. BATHURST, BART., Somborne Park, Stockbridge, Hants, white, **Somborne Duke**, born 21st March; s Throsk Broadhooks 46th, d Myrtle Blossom, s d Donne Bright Star (142055).

CHAMPION PRIZE.

GIVEN BY THE SHORTHORN SOCIETY.

Best Bull in Classes 78 to 80, entered in, or eligible for entry in Coates's Herd Book, with Silver Medal to the Breeder.

I. (210).—C. E. GUNTHER, Tongswood, Hawkhurst, Kent, white, **Tongswood Bequest** (159997), born 17th March, 1919; s Knight Lavender (121046), d Tongswood Bessie 3rd, s d Knight Lavender (121046).

R.—H.R.H. THE PRINCE OF WALES, K.G., Home Farm, Stoke Climsland, white, **King's Messenger**, born 10th May; s Christian King (147900), d Myrtle's Dandy, s d Collynie Premier (124847).

DAIRY SHORTHORN.

(The First Prizes in Classes 81 and 82, and a Silver Medal to the Breeder of the winners, were offered by the Shorthorn Society in conjunction with the Dairy Shorthorn Association, and the First Prize in Class 85 was given by the Dairy Shorthorn Association).

CLASS 81.—*Pedigree Cow, in-Milk, calved in or before 1918, eligible for, and entered in Coates's Herd Book, or Pedigree sent for such entry previous to the show, and not having previously won a similar prize offered by the above named Society or Association in 1921, milked in the Ring before judging, under Condition 61. First prize, £10—second, £5—third, £2. [3 entries.]*

[No Award.]

CLASS 82.—*Pedigree Cow, in-Milk, calved in or after 1919, eligible for and entered in Coates's Herd Book, or pedigree sent for such entry previous to the Show, and not having previously won a similar prize offered by the above-named Society or Association in 1921 milked in the Ring before judging, under Conditions 61. First prize, £10—second, £5—third, £2. [1 entry.]*

[No Award.]

(The Prizes in Class 83 were given by Mr. E. Ezra, of Lock, Partridge Green, Sussex).

CLASS 83.—*Pedigree Dairy Shorthand Heifer, calved in 1921, eligible for, and entered in Coates's Herd Book, or pedigree sent for such entry previous to the Show, subject to Conditions No. 62. [4 entries.]*

I. (210.)—E. EZRA, Lock, Partridge Green, Sussex, roan, **Lock Fashion**, born 7th May; s Proud Victor (151279), d Ormerod Fashion, s d Kelmscott Conjuror 2nd (137268).

II. (25.)—E. EZRA, roan, **Lock Emma**, born 11th April; s Proud Victor (151279), d Ormerod Emma, s d Kelmscott Conjuror 2nd (137268).

III. (22.)—F. W. MORLEY, Biddestone Manor, Chippenham, Wilts, red and little white, **Biddestone Purity** (Vol. 68), born 20th April; s Knowsley Dolphin (137428), d Cockerham Purity, s d Spency Beau (117836).

CLASS 84.—*Pedigree Dairy Shorthorn Bull, calved before 1921. [3 entries.]*

I. (210.)—R. N. TORY, Anderson, Blandford, Dorset, white, **White Lord** (168010), born 9th May, 1920; s Babraham Lord Price (140574), d Bianca Blanch 8th (Vol. 63, p. 1231), s d Billing Rajah (124320).

II. (25.)—MAJOR H. L. HAVERS, Little Hele, South Molton, North Devon, roan, **Darling King** (155233, Vol. 66, p. 126), born 1st February, 1919, bred by Mr. Tyner; s Furbelow King (136617), d Salmon's Darling 14th, s d Salmon's Dairy Prince (117593).

CLASS 85.—*Pedigree Dairy Shorthorn Bull, calved in 1921, entered or pedigree accepted for entry in Coates's Herd Book, subject to Conditions No. 62.* [2 entries.]

I. (210).—E. EZRA, Lock, Partridge Green, Sussex, roan, **Lock Baron 2nd**, born 30th May; s Proud Victor (151279), d Lacy Ringlet 24th, s d Dairyman (130512).

HEREFORD.

CLASS 86.—*Hereford Cow, in-Milk, calved before 1919.* [3 entries.]

I. (210).—C. H. TINSLEY, Twyford, Pembridge, Herefordshire, **Wise Money**, born 16th February, 1914, bred by W. Whiteman, The Hyll, Leominster; s Even Money (28261), d Sally Wise, s d Shucknall Royal (27220).

II. (25).—W. H. DEPPEE, Dean Park, Tenbury, Wells, **Derwent** (Vol. 49, p. 376), born 10th February, 1913, bred by W. C. Boulton, Cholstrey, Leominster; s Pendra (27091), d Dorina (Vol. 44, p. 264), s d Whitfield Earl (22665).

III. (22).—O. WILLIAMS, Crossways, Cowbridge, Glam., **Augusta**, born 21st February, 1914, bred by S. C. Hayter, Twyford; s Rouge-et-Noir (27840), d Alice, s d Jack Tar (22252).

CLASS 87.—*Hereford Heifer, in-Milk, calved in 1919.* [3 entries.]

I. (210).—C. H. TINSLEY, Twyford, Pembridge, Herefordshire, **Twyford Blue Eyes**, born 2nd February; s Pretender (31846), d Bluebird, s d Cheer Up (31344).

II. (25).—O. WILLIAMS, Crossways, Cowbridge, Glam., **Crossways Opal**, born 6th January; s Ringer (31920), d Sheepcote Opal (Vol. 47, p. 625), s d Milton (25571).

III. (22).—D. P. BARNETT, Walterston, Llancarfan, Cowbridge, **Lady Boadicea**, born 16th January; s Sir Sam (33131), d Boadicea, s d Candidate (24465).

CLASS 88.—*Hereford Heifer, calved in 1920.* [6 entries.]

I. (210).—H. M. THE KING, The Royal Farms, Windsor, **Radiance 2nd**, born 17th February; s Twyford Triumph (35704), d Radiance, s d Broadward Gambler (26694).

II. (25).—O. WILLIAMS, Crossways, Cowbridge, Glam., **Crossways Olivia**, born 17th January; s Vandal (31144), d Olivia, s d Orion (30854).

III. (22).—W. H. B. CAVE, Wall End, Monkland, Leominster, **Lisa** (Vol. 51, p. 308), born 9th March; s Shucknall Best (34316), d Lulu (Vol. 48, p. 468), s d Cross Belt (27470).

E.—C. R. ENGLISH, Evesbatch Court, Bishops Frome, Herefordshire, **Rose Curly**, born 7th January; s Vandal (31144), d Evesbatch Curly 10th (Vol. 50, p. 888), s d Carb no (28132).

H.C.—D. P. BARNETT, Walterston, Llancarfan, Cowbridge, **Lucy**, born 17th March; s Raffles, d Shelsley Lucy, s d Eaton Sovereign.

C.—N. S. WILSON, Norton Grange, Malmesbury, Wilts, **Highland Maid** (Vol. 51, p. 741), born 30th March; s Bromidé (38693), d Highland Mary (Vol. 50, p. 1024), s d Highland Prince (25437).

CLASS 89.—*Hereford Heifer, calved in 1921.* [6 entries.]

I. (210.)—D. P. BARNETT, Walterston, Llancarfan, Cowbridge, **Snowdrop**, born 22nd January; s Walterston Sam, d Dolesome, s d Sir Sam.

II. (25.)—O. WILLIAMS, Crossways, Cowbridge, Glam., **Crossways Beauty 2nd**, born 7th January; s Resolute (35537), d Beauty 11th, s d Leen Vistula (31664).

III. (22.)—C. R. ENGLISH, Evesbatch Court, Bishops Frome, Herefordshire, **Rose Connie**, born 21st February; s Subaltern (35654), d Comfort (Vol. 50, p. 554), s d Royal Oyster (30993).

R.—F. F. MASON, The Faraam, Killay, Glamorgan, **Faraam Deborah**, born 3rd January; s Faraam Sparta (36685), d Faraam Delilah (Vol. 51, p. 524), s d Pentwyn Rougemont (31813).

H.C.—W. H. B. CAVE, Wall End, Monkland, Leominster, **Bonnie Nell** (Vol. 52), born 8th February; s Shucknal Best (34316), d Bonnie May (Vol. 45, p. 375), s d Field-Marshal (23489).

C.—O. WILLIAMS, **Crossways Violet 2nd**, born 1st January; s Bounteous (36107), d Preston Violet, s d Gipsy King (30608).

CHAMPION PRIZE.

GIVEN BY THE HEREFORD HERD BOOK SOCIETY.

Best Registered Cow or Heifer in Classes 86 to 89.

I. (210.)—C. H. TINSLEY, Twyford, Pembridge, Herefordshire, **Wise Money**, born 16th February, 1914, bred by W. Whiteman, The Hyll, Leominster; s Even Money (28261), d Sally Wise, s d Shucknall Royal (27220).

R.—H.M. THE KING, The Royal Farms, Windsor, **Radiance 2nd**, born 17th February; s Twyford Triumph (35704), d Radiance, s d Broadward Gambler (26694).

CLASS 90.—*Hereford Bull, calved in 1918 or 1919.* [1 entry.]

I. (210.)—C. H. TINSLEY, Twyford, Pembridge, **Twyford Gay Lad**, born 13th May, 1919; s Nelson (35341), d Grace, s d Muscatel (31766).

CLASS 91.—*Hereford Bull, calved in 1920.* [5 entries.]

I. (210.)—C. H. TINSLEY, Twyford, Pembridge, Herefordshire, **Twyford Fairy Boy** (40171), born 16th January; s Bound's Investment (36087), d Fairy Girl 3rd, s d Sir Albert (33126).

II. (25.)—O. WILLIAMS, Crossways, Cowbridge, Glam., **Crossways Chef** (38910), born 9th March; s Bodenham Gallant (34638), d Holly Cook, s d Hollybush David (31587).

III. (22.)—N. S. WILSON, Norton Grange, Malmesbury, Wilts, **Plumstone** (39806), born 24th March ; s Worcester (33279), d Plum 7th (Vol. 46, p. 1055), s d Sailor Prince (26465).

R.—O. WILLIAMS, **Crossways Rebel** (38941), born 12th January ; s Bodenham Gallant (34638), d Sylvia Pankhurst, s d Candidate (24465).

CLASS 92.—*Hereford Bull, calved in 1921.* [5 entries.]

I. (210.)—C. H. TINSLEY, Twyford, Pembridge, Herefordshire, **Twyford Gambler**, born 8th January ; s Bound's Investment (36087), d Wise Delight, s d Memento (29224).

II. (25.)—H. MORELAND, Marstow Court, Marstow, Ross, **Marstow Enterprise**, born 11th January ; s Frome Star (31486), d Bounty (Vol. 49, p. 805), s d General French (31511).

III. (22.)—F. F. MASON, The Faraam, Killay, Glamorgan, **Faraam Serenader**, born 7th January ; s Faraam Sparta (36685), d Faraam Mistletoe (Vol. 51, p. 524), s d Pentwyn Rougemont (31813).

R.—H. MORELAND, **Marstow Plum**, born 5th March ; s Frome Star (31486), d Plum Tart (Vol. 49, p. 811), s d Lord Langston (29195).

H.C.—O. WILLIAMS, Crossways, Cowbridge, Glam., **Crossways Royal Highness** (40787), born 14th January ; s Sovereign (35628), d Avoca, s d Rouge et Noir (27840).

CHAMPION PRIZE.

GIVEN BY THE HEREFORD HERD BOOK SOCIETY.

Best registered Bull in Classes 90 to 92.

I. (210.)—C. H. TINSLEY, Twyford, Pembridge, Herefordshire, **Twyford Fairy Boy** (40171), born 16th January ; s Bound's Investment (36087), d Fairy Girl 3rd, s d Sir Albert (33126).

R.—O. WILLIAMS, Crossways, Cowbridge, Glam., **Crossways Chef** (38910), born 9th March ; s Bodenham Gallant (34638), d Holly Cook, s d Hollybush David (31587).

SUSSEX.

(The Prizes in Class 93 and the Silver Medals were given by the Sussex Herd Book Society).

CLASS 93.—*Sussex Cow, or Heifer, in-Milk, calved in or before 1919*
[3 entries.]

I. (210.)—C. NEWINGTON, Oakover, Ticehurst, Sussex, **Oakover Twin 8th** (17036), born 6th January, 1916 ; s Oakover Gold 2nd (2970), d Oakover Twin 6th (15171), s d Hilda's Briar (2650).

II. (25.)—J. C. DREW, J.P., Wadhurst Hall, Wadhurst, Sussex, **Browning's Bloom 2nd** (16858), born 18th May, 1916, bred by J. Groves, Thurston Hall, Framfield, Sussex ; s Lock Miller 2nd (2994), d Ashburnham Bloom (11647), s d Limehurst Sailor (2035).

CLASS 94.—*Sussex Heifer, calved in 1920 or 1921.* [10 entries.]

I. (210.)—E. EZRA, Lock, Partridge Green, Sussex, **Drungewick Daisy 16th**, born 26th February, 1920, bred by E. E. Braby, Drungewick Manor, Rudgwick: s Drungewick A 17th (4582), d Drungewick Daisy 14th (16712), s d Drungewick Marksman 3rd (3274).

II. (25.)—SIR J. ESPLEN, BART., Hardres Court, Canterbury, Kent, **Avisford Beauty** (19236), born 26th January, 1920, bred by E. C. Fairweather, Avisford Park, Arundel, Sussex; s St. Albans 43rd (4405), d Lock Beauty 2nd (15983), s d Prince of Lock 2nd (2499).

III. (22.)—J. C. DREWE, J.P., Wadhurst Hall, Wadhurst, Sussex, **Thurston Galatea**, born 2nd January, 1920, bred by G. T. Eaton, Thurston Hall, Framfield, Sussex; s Lynwick Red Rover (3811), d Browning's Galatea 1st (16282), s d Lock Miller 2nd (2994).

V.H.C.—J. C. DREWE, J.P., Wadhurst Pet, born 7th January, 1921; s Browning's Miller 27th (4665), d Drungewick Pet (11708), s d Albert 2nd (2052).

SILVER MEDAL.

Best Cow or Heifer in Class 93 or 94.

I.—C. NEWINGTON, Oakover, Ticehurst, Sussex, **Oakover Twin 8th** (17036), born 6th January, 1916; s Oakover Gold 2nd (2970), d Oakover Twin 6th (15171), s d Hilda's Briar (2650).

R.—E. EZRA, Lock, Partridge Green, Sussex, **Drungewick Daisy 16th**, born 26th February, 1920, bred by E. E. Braby, Drungewick Manor, Rudgwick; s Drungewick A 17th (4582), d Drungewick Daisy 14th (16712), s d Drungewick Marksman 3rd (3274).

CLASS 95.—*Sussex Bull, calved in 1919, 1920 or 1921.* [6 entries.]

I. (210.)—C. NEWINGTON, Oakover, Ticehurst, Sussex, **Oakover Lad 9th** (5339), born 18th March, 1920; s Mableton Lad (4326), d Favourite 21st (13061), d Orchardmains Square (2475).

II. (25.)—J. C. DREWE, J.P., Wadhurst Hall, Wadhurst, Sussex, **Thurston Turk**, born 5th February, 1920, bred by G. T. Eaton, Thurston Hall, Framfield, Sussex; s Lynwick Red Rover (3811), d Drungewick Pet (11708), s d Albert 2nd (2052).

SILVER MEDAL.

Best Bull in Class 95.

I.—C. NEWINGTON, Oakover, Ticehurst, Sussex, **Oakover Lad 9th** (5339), born 18th March, 1920; s Mableton Lad (4326), d Favourite 21st (13061), d Orchardmains Squire (2475).

R.—J. C. DREWE, J.P., Wadhurst Hall, Wadhurst, Sussex, **Thurston Turk**, born 5th February, 1920, bred by G. T. Eaton, Thurston Hall, Framfield, Sussex; s Lynwick Red Rover (3811), d Drungewick Pet (11708), s d Albert 2nd (2052).

RED POLL.

(£34 towards the Prizes in Classes 96 to 100 were given by the Red Poll Cattle Society).

CLASS 96.—*Red Poll Cow or Heifer, in-Milk, calved before 1920.* [3 entries.]

I. (£10.)—MAJOR J. A. MORRISON, D.S.O., Basildon Park, Goring, Reading, Perks, **Sudbourne Fascination** (24367), born 10th November, 1913; s Acton Crowfoot (9987), d Sudbourne Fancy (21458), s d Sudbourne Stormer (9650).

II. (£5.)—MAJOR J. A. MORRISON, D.S.O., **Brightwell Clinvar** (23906), born 1st January, 1913, bred by E. G. Pretymann, Orwell Park, Ipswich; s Sir David (10363), d Maiden (21247), s d Majestic (9714).

CLASS 97.—*Red Poll Heifer, calved in 1920.* [4 entries.]

I. (£10.)—VISCOUNT FOLKESTONE, Longford Castle, Salisbury, **Dallinghoo Blossom 3rd** (28654), born 7th January, bred by E. C. Ash; s Gressenhall Taurus (10722), d Dallinghoo Blossom 2nd (25552), s d Letton Majiolini (10318).

II. (£5.)—MAJOR J. S. COURTAULD, Burton Park, Petworth, Sussex, **Burton Eden** (28586), born 19th March; s Ghurka (10995), d Plumstead Paradise (23161), s d Sardauapulus (9962).

III. (£2.)—J. G. DUGDALE, The Abbey, Cirencester, **Whiteway Wistaria** (29431), born 22nd March; s Necton Gloucester (11423), d Polstead Pansy 1st (26428), s d Hun 2nd (11016).

R. & V.H.C.—J. G. DUGDALE, **Ashmoor Beatitude** (28447), born 18th March, bred by A. C. Smith, Sutton Hall, Woodbridge, Suffolk; s Ashmoor Count (11244), d Ashmoor Bessie (21973), s d Bad Mark (9905).

CLASS 98.—*Red Poll Heifer, calved in 1921.* [2 entries.]

I. (£10.)—MAJOR J. S. COURTAULD, Burton Park, Petworth, Sussex, **Burton Beryl** (Vol. 39), born 20th January; s Sudbourne Ken (11232), s Boulge Beryl (23890), s d Boulge Red Coat.

CLASS 99.—*Red Poll Bull, calved in or before 1920.—First prize, £10—second, £5—third, £2.*

[NO ENTRY.]

CLASS 100.—*Red Poll Bull, calved in 1921.* [1 entry.]

I. (£10.)—CAPTAIN A. RICHARDSON, Seven Springs, near Cheltenham, **Seven Springs Freemason** (Vol. 39), born 9th February; s Harefield Clinker (11000), s Harefield Battine (26211), s d Freemason (10851).

ABERDEEN-ANGUS.

(The First Prize in Class 101 was given by the English Aberdeen-Angus Cattle Association).

CLASS 101.—*Aberdeen-Angus Cow or Heifer, in-Milk, calved before 1st December, 1920.* [2 entries.]

I. (210.)—MAJOR J. A. MORRISON, D.S.O., Basildon Park, Goring, Reading, Berks, **King Jilt of Tarsets** (58234), born 20th March, 1916; s Kindness Again 2nd (38148), d The Cullen Jilt (53171), s d Earl of Mar and Cullen (30320).

II. (25.)—E. A. WIGAN, Conholt Park, Andover, **Lady Rose of Conholt** (61430), born 11th December, 1916; s Earl Ebon of Ballindalloch (35751), d Tuberosa of Standen (43477), s d Elector of Benton (21814).

CLASS 102. *Aberdeen-Angus Heifer, calved on or after 1st December, 1920.* [7 entries.]

I. (210.)—J. J. CRIDLAN, Maisemore Park, Gloucester, **Pride 22nd of Maisemore** (69158), born 7th February, 1921; s George R. of Ballindalloch (30611), d Pride 19th of Maisemore (64341), s d Idyll of Maisemore (36219).

II. (25.)—MAJOR J. A. MORRISON, D.S.O., Basildon Park, Goring, Reading, Berks, **Black Bess of Basildon**, born 21st December, 1920; s Euthopia of Basildon (45795), d Beauty of Shecolds (56851), s d Proud Pict of Wicken (33771).

III. (22.)—THE RIGHT HON. THE LORD MAYOR OF CARDIFF (COUNCILLOR F. HAROLD TURNBULL), Lower House Farm, Llantwit Major, Glam., **Blackglo of Advie** (69607), born 3rd February, 1921, bred by P. Grant, Mains of Advie; s Glorious of Ballindalloch (46005), d Blackbird 2nd of Braevail (51573), s d Ebonist of Ballindalloch (27875).

R.—MAJOR J. A. MORRISON, D.S.O., **Queen 3rd of Basildon**, born 8th May, 1921; s Idyll of Maisemore (36219), d Queen Alexandra (55835), s d Gardafire of Ballindalloch (31967).

H.C.—E. A. WIGAN, Conholt Park, Andover, Hants, **Ida of Conholt** (70846), born 10th December, 1920; s Ether of Bleaton (39535), d Idea of Conholt (61428), s d Earl Ebon of Ballindalloch (35751).

C.—THE RIGHT HON. THE LORD MAYOR OF CARDIFF (COUNCILLOR F. HAROLD TURNBULL), **Witch 3rd of Pitcalzean** (68888), born 12th February, 1922, bred by R. Brims, Pitcalzean Mains, Nigg, Ross-shire; s Proud Eric of Aberlour (44516), d Witch of Ardmore 5th (56028), s d Edmund of Advie (34305).

CLASS 103.—*Aberdeen-Angus Bull, calved in 1919, 1920 or 1921* [5 entries.]

I. (210.)—J. J. CRIDLAN, Maisemore Park, Gloucester, **Everdear of Maisemore** (45859), born 18th February, 1919; s Evercalm (33167), d Evergreen 39th (58018), s d Black Boy of Maisemore.

II. (25.)—MAJOR J. A. MORRISON, D.S.O., Basildon Park, Goring, Reading, Berks, **Baron Eros of Bleaton** (47225), born 12th January, 1920, bred by Marshall & Mitchell, Bleaton, Blairgowrie; s Baron Beauford (35480), d Rosemary Erica (49660), s d Edward Carr (25496).

xI *Prizes awarded to Aberdeen-Angus and British Friesian Cattle.*

III. (42.)—H. C. VENNING, Willett, Bicknoller, Taunton, **Princely of Willett** (49026), born 22nd February, 1920; s Proud Prince of Bywell (44528), d Bywell Pride (59558), s d Meteor of Apethorpe (38262).

R.—THE RIGHT HON. THE LORD MAYOR OF CARDIFF (Councillor F. Harold Turnbull), Lower House Farm, Llantwit Major, Glam., **Proud Padre** (51422), born 28th March, 1921, bred by J. F. Cumming, Kinermony Farm, Aberlour; s Bandsman of Inchgower (44967), d Princely Pride (49947), s d Every Effort (28043).

C.—E. A. WIGAN, Conholt Park, Andover, Hants, **Kato of Conholt** (50885), born 20th December, 1920; s John Barleycorn of Conholt (46169), d Katrine of Conholt (63713), s d Ether of Bleaton (39535).

CHAMPION PRIZES.

GIVEN BY THE ABERDEEN-ANGUS CATTLE SOCIETY.

A Silver Medal for the best Animal in Classes 101 to 103.

I.—J. J. CRIDLAN, Maisemore Park, Gloucester, **Everdear of Maisemore** (45859), born 18th February, 1919; s Evercalm (33167), d Evergreen 30th (58018), s d Black Boy of Maisemore.

R.—J. J. CRIDLAN, **Pride 22nd of Maisemore** (69158), born 7th February, 1921; s George R. of Ballindalloch (30611), d Pride 19th of Maisemore (64341), s d Idyll of Maisemore (36219).

GIVEN BY THE ENGLISH ABERDEEN-ANGUS CATTLE ASSOCIATION.

A Silver Medal for the best Animal of opposite sex.

I.—J. J. CRIDLAN, Maisemore Park, Gloucester, **Pride 22nd of Maisemore** (69158), born 7th February, 1921; s George R. of Ballindalloch (30611), d Pride 19th of Maisemore (64341), s d Idyll of Maisemore (36219).

R.—MAJOR J. A. MORRISON, D.S.O., Basildon Park, Goring, Reading, Berks, **King Jilt of Tarssets** (58234), born 20th March, 1916; s Kindness Again 2nd (38148), d The Cullen Jilt (53171), s d Earl of Mar and Cullen (30320).

BRITISH FRIESIAN.

(£30 towards the Prizes in Classes 104 to 108 were given by the British Friesian Cattle Society, and animals entered must be registered in the B.F.S. Herd Book proper, those registered in the Supplementary Section not being eligible).

CLASS 104.—*British Friesian Cow or Heifer, any age, in-Milk.* [9 entries.]

I. (410.)—G. T. EATON, Thurston Hall, Framfield, Sussex, **Petygards Ciro**s (26080), born 30th October, 1916, bred by R. G. Buxton, Petygards, Swaffham; s Petygards (Imp.) Bles Albert (4321), d Petygards Clare (15670), s d Petygards Foreman.

II. (45.)—G. HOLT THOMAS, Northdean House, Hughenden, Bucks, **Kingswood Elaine** (18220), born 19th December, 1914, bred by H. Hale, Findon, Worthing, Sussex; s Eaton's Prince (1183), d Kingswood Myrtle (9294), s d Kingswood Prince (341).

III. (#2).—G. HOLT THOMAS, Colton Sunray (32650), born 31st October, 1918, bred by H. Brown, Colton Mains ; s Terling (Imp.) Vic Bertus (4541), d Colton Sunset (6868), s d Colton Puritan (95).

R.—MESSRS. SAYERS, Groundwell Manor, Blunsdon, Swindon, **Golf Phoebe**mijn (24718), born 23rd June, 1916, bred by J. Bromet, Golf Links Farm, Tadcaster, Yorkshire ; s Golf (Imp.) Botermijn (3919), d Golf Phoebe (14836), s d Golf Gay King (233).

CLASS 105. —*British Friesian Heifer, not in-Milk, calved in 1920.* [8 entries.]

I. (#10).—G. T. EATON, Thurston Hall, Framfield, **Thurston Ellen** (49368), born 26th April ; s Kirkhill (Imp.) Karel 2nd (4051), d Kirkhill Nellie 3rd (18274).

II. (#5).—G. T. EATON, **Thurston Evelyn** (49382), born 10th March ; s Gorstage (Imp.) Mietje's Victor (3939), d Gorstage Gloaming 2nd (14854).

III. (#2).—Miss A. GUEST, Inwood, Templecombe, **Inwood Johannamaid** (46288), born 19th February ; s Rochford (Imp.), Johan (4399), d Tredegar Dairymaid (4728).

R.—Miss A. GUEST, **Inwood Grace Darling** (46282), born 2nd September ; s Dunninald Gaatsomairschaap (6175 P.I.), d Bowerchalke Darling 4th (5890), s d Hedges Forest King (283).

CLASS 106. —*British Friesian Heifer, calved in 1921.* [11 entries.]

I. (#10).—G. T. EATON, Thurston Hall, Framfield, Sussex, **Thurston Karel Blossom**, born 19th January ; s Kirkhill (Imp.), Karel 2nd (4051), d Brunton Mietje's Hazel (32288).

II. (#5).—G. T. EATON, **Thurston Karel Stephanotis**, born 15th February ; s Kirkhill (Imp.) Karel 2nd (4051), d Gorstage Gloaming 2nd (14854).

III. (#2).—Miss A. GUEST, Inwood, Templecombe, **Inwood Glittering Pearl**, born 20th May ; s Dunninald Gaatsomairschaap (6175 P.I.), d Inwood Mother o' Pearl (25126), s d Inwood (Imp.), Ideaal (4027).

R.—G. HOLT THOMAS, Northdean House, Hughenden, Bucks, **Northdean Bonnie Annie**, born 21st March ; s Debl Hollander (7655 P.I.), d Hedges Bonnie Annie (1698), s d Hedge Hawkrigg Duke (293).

H.C.—MESSRS. SAYERS, Groundwell Manor, Blunsdon, Swindon, **Groundwell Bess 3rd**, born 15th June ; s Hedges (Imp.), Fokke 2nd (3993), d Groundwell Bess (33668), s d Beeches Gerald (4787).

C.—MESSRS. SAYERS, **Groundwell Phoebe**mijn, born 5th June ; s Hedges (Imp.) Fokke 2nd (3993), d Golf Phoebemijn (24718), s d Golf (Imp.) Botermijn (3919).

CLASS 107. —*British Friesian Bull, calved in or before 1920.* [2 entries.]

I. (#10).—A. ALLEN, The Manor, Chesterblade, Somerset, **Kingswood Ynteseries** (14531), born 17th June, 1920, bred by H. Hale, Findon, Worthing, Sussex ; s Hedges Second Series (6427), d Kingswood Gem (25202), s d Kingswood (Imp.) Ynte (4047).

II. (25.)—G. P. WILLIAMS, Scorrier, Cornwall, **Sutton Magnet** (15443), born 29th April, 1920, bred by W. C. Jones, Lyme Green, near Macclesfield; s Cymric (Imp.) Frita (3755), d Pebsham Magnify (30304), s d Pebsham Great Surprise (3065).

CLASS 108.—*British Friesian Bull, calved in 1921.* [4 entries.]

I. (210.)—MISS GUEST, Inwood, Templecombe, **Dunninald Rijpmaster** (P.I., Vol. xi), born 12th July, bred by the late Major D. A. Spence, V.D., Montrose, Scotland; s Seaton Roland (10593 P.I.), d Inwood (Imp.), Rijpma 10th (18156), s d De Verwachtin 2nd (4429 F.R.S.).

II. (25.)—E. T. BRYANT, Leycroft Farm, Taunton, Somerset, **Huntinghorn Eager**, born 15th January, bred by Lieut.-Col. C. W. Edwards, Woolston Manor, North Cadbury, Somerset; s Dunninald Gaatsomairschaap, d Harston Grace, s d Leeroch Pompey.

III. (22.)—A. ALLEN, The Manor, Chesterblade, Somerset, **Glen Gaatsomairschaap** (17023), born 20th May; s Dunninald Gaatsomairschaap (6175 P.I.), d Inwood Nellie (21532), s d Hedges Highlander (1443).

R.—MESSRS. SAYERS, Groundwell Manor, Blunsdon, Swindon, **Groundwell Fokke 2nd**, born 16th February; s Hedges (Imp.) Fokke 2nd (3993), d Groundwell Hannah (24762), s d Blackmore (Imp.) Jonker (3539).

JERSEY.

(The Prizes in Class 109 were given by the English Jersey Cattle Society).

CLASS 109.—*Jersey Cow or Heifer, in-Milk, entered in or eligible for entry in the English Jersey Herd Book, sired in Great Britain or Ireland.* [12 entries.]

I. (25.)—MRS. RUDD, Felbridge Park Farm, East Grinstead, who's, **Fire King's Tidy**, born 2nd May, 1918; s Fire King (12615), d Jolly Tidy, s d Cyclone 3rd.

II. (23.)—R. BRUCE WARD, Godington, Ashford, Kent, whole, **Elfrida**, born 26th June, 1917, bred by Countess Roberts, Englemere, Ascot; s Gipsy's Astor (12316), d Gazefreda, s d Gazehound (10614).

III. (22.)—MRS. EVELYN, Wotton House, Dorking, broken, **Wotton Pink May**, born 25th July, 1916; s Red Cloud (11818), d Lady May 22nd (341), s d Royal Reward (9413).

R.—MRS. RUDD, **Cygnus 3rd**, born 21st September, 1916, bred by H. K. Thompson, Owving House, Aylesbury; s Daystar, d Swansea, s d Swansdown.

V.H.C.—MAJOR THE HON. H. PEAHSON, Cowdray Park, Midhurst, Sussex, whole, **Pioneer's Lady**, born 25th April, 1920; s Pioneer's Noble (12416), d Plymouth Lady, s d Redskin (11822). —SIR G. S. WHITE, BART., Hollywood Tower, near Bristol, broken, **Peace of Hollywood**, born 18th July, 1919; s Pepper (12413), d Daisy of Hollywood, s d Client (10561).

CLASS 110.—*Jersey Cow, in-Milk, calved before 1919.* [14 entries.]

I. (210.)—MAJOR THE HON. H. PEARSON, Cowdray Park, Midhurst, Sussex, whole, **Amira's Pride Miss**, born 7th July, 1916, bred by J. F. Brideaux, St. Owen's; s Hamptonne Grey (4995), d Amira's Pride (14809 P.S.H.C.), s d Golden Castor (3558).

II. (25.)—COLONEL L. G. GISBORNE, C.M.G., Lingen Hall, Brampton Bryan, broken, **Distressed Lady**, born 26th April, 1915, bred by E. Cabot, Jersey; s Dandy Actor (11663), d Medora's Pride (17784), s d King Anemone.

III. (22.)—H. L. POPHAM, Hunstrete House, Pensford, near Bristol, nearly whole, **Doreen's Favourite**, born 14th May, 1916, bred by S. de la Haye, St. Martin's, Jersey; s Sweet Sultan (12776), d Doreen of St. Luke's, s d Cowslip's Golden Noble.

R.—MRS. RUDD, Felbridge Park Farm, East Grinstead, whole, **Fire King's Tidy**, born 2nd May, 1918; s Fire King (12615), d Jolly Tidy, s d Cyclone 3rd.

V.H.C.—R. BRUCE WARD, Godington, Ashford, Kent, whole, **Elfrida**, born 26th June, 1917, bred by Countess Roberts, Englemere, Ascot; s Gipsy's Castor (12316), d Gazefreda, s d Gazehound (10614). COL. L. G. GISBORNE, C.M.G., brown, **Joylaugh**, born 12th April, 1918, bred by W. R. Le Cocq, St. John's, Jersey; s Jersey Volunteer (12664), d Joy (20637), s d General Cowslip (10960).

CLASS 111.—*Jersey Cow or Heifer, in-Milk, calved in 1919.* [7 entries.]

I. (210.)—MRS. EVELYN, Wotton House, Dorking, broken, **Trinity Spell**, born 4th March, bred by S. H. Blampied, Trinity, Jersey; s Golden Fern Rower (5539), d Trinity Charm (22396).

II. (25.)—SIR G. S. WHITE, BART., Hollywood Tower, near Bristol, broken, **Peace of Hollywood**, born 18th July, 1919; s Pepper (12413), d Daisy of Hollywood, s d Lient (10561).

III. (22.)—COLONEL L. G. GISBORNE, C.M.G., Lingen Hall, Brampton Bryan, broken, **Leader's Agatha**, born 1st March, bred by W. J. Hoel, St. Martin's, Jersey; s Leader of Lynn (5488), d Agatha's Eurydice (20722), s d Agatha's Oxford Noble (4850).

R.—MRS. HAYES SADLER, Nonsbury, Sutton Scotney, Hants, whole, **Golden Girl**, born 17th October; s La Glovie Boy (12989), d Golden Origa, s d Blondes Golden Oxford.

V.H.C.—COLONEL L. G. GISBORNE, C.M.G., Linden Hall, Brampton Bryan, Herefordshire, whole, **Wealington Lilac**, born 26th February, 1919, bred by Captain Baron Van Haefton, Westington House, Aylesbury; s King Albert (13322), d Yeovil Lass (Vol. 28, p. 367), s d Prince Guide (11118).—R. BRUCE WARD, Godington, Ashford, Kent, whole, **Piquant**, born 21st April, 1919; s Prometheus (13391), d Caper, s d Capsicum (10892).

CLASS 112.—*Jersey Heifer, in-Milk, calved in or since 1920.* [12 entries.]

I. (210.)—MAJOR THE HON. H. PEARSON, Cowdray Park, Midhurst, Sussex, broken, **Cowdray Belle**, born 25th May, 1920; s Xenia's Sultan (13798), d Clarencia's Belle, s d Jersey Volunteer (12664).

II. (25.)—**MAJOR THE HON. H. PEARSON**, whole, **Pioneer's Lady**, born 25th April, 1920 ; s Pioneer's Noble (12416), d Plymouth Lady, s d Redskin (11822).

III. (22.)—**MRS. HAYES SADLER**, Nonsbury, Sutton Scotney, Hants, **Fontaine's Lilac**, born 12th February, 1920 ; s Carteret Oxford Lad (5555), d Fontaine's Marigold (23816), s d White Star (5053).

R.—**R. BRUCE WARD**, Godington, Ashford, Kent, whole, **Marcella**, born 31st March, 1920 ; s Marionette's Fox (13655), d Capsella, s d Capsicum (10892).

V.H.C.—**MRS. EVELYN**, Wotton House, Dorking, whole, **Wotton Mispah**, born 15th January, 1920 ; s Boaz (12846), d Wotton Pansy (Vol. 28, p. 364), s d Illustrious (10289).—**COLONEL L. G. GISBORNE**, C.M.G., Lingen Hall, Brampton Bryan, whole, **Edna Beauty**, born 27th April, 1920, bred by C. G. Quenault, St. John's, Jersey ; s Anemone's Boy (5520), d Fair Edna (24389), s d Fairy General (5358).—**SIR G. S. WHITE, BART.**, Hollywood Tower, near Bristol, broken, **Buttercup of Hollywood**, born 7th January, 1920 ; s Goddington Pioneer 2nd (13282), d Bluebell, s d Client (10561).

CLASS 113.—*Jersey Heifer, calved in 1921.* | 14 entries.]

I. (210.)—**MRS. EVELYN**, Wotton House, Dorking, whole, **Wotton Sand Cloud**, born 12th June ; s Wotton Sandy (12814), d Wotton May Cloud (Vol. 32, p. 482), s d Red Cloud (11818).

II. (25.)—**SIR G. S. WHITE, BART.**, Hollywood Tower, near Bristol, whole, **Hazel of Hollywood**, born 31st March ; s Beuvelande Emperor (13182), d Harebell of Hollywood, s d Pepper (12413).

III. (22.)—**MRS. HAYES SADLER**, Nonsbury, Sutton Scotney, whole, **Cids Octavia**, born 12th April, bred by Mrs. Ames, Manor House, Thornham ; s Park Cid (13374), d Daisy Bell.

R.—**MAJOR THE HON. H. PEARSON**, Cowdray Park, Midhurst, Sussex, whole, **Marston Merry Lass**, born 7th April, bred by W. Wilkins, Longmarston, Tring ; s Sybil's Hope (13768), d Sleeper's Merry Lass, s d Sleeper (13119).

CLASS 114.—*Jersey Bull, calved in 1918, 1919 or 1920.* | 6 entries.]

I. (210.)—**SIR G. S. WHITE, BART.**, Hollywood Tower, near Bristol, whole, **Marigold's Prince**, born 25th April, 1919, bred by R. Bruce Ward, Godington, Ashford, Kent ; s Prometheus (13391), d Last of the Marigolds, s d Reynard the Fox (12124).

II. (25.)—**THE EARL OF MOUNT EDGECUMBE**, Mount Edgecumbe, Plymouth, dark fawn, **Prince Prudence 5th**, born 29th February, 1920, bred by P. J. Syvret, St. Peter's, Jersey ; s Xenia's Sultan (5578), d Duchess Prudence 2nd (17258).

III. (22.)—**F. B. IMBERT-TERRY**, Blue Hayes, Broad Clyst, Devon, whole, **Blue Hayes Red Candy**, born 27th December, 1920 ; s Hotspur (12657), d Catherine (Vol. 30, p. 244), s d Royal Castle (11835).

R.—**MRS. GATHORNE HILL**, Claverton Manor, Bath, whole, **Royal**, born 19th April, 1920 ; s Wotton Rainbow, d Jenny, s d Very Clear.

CLASS 115.—*Jersey Bull, calved in 1921.* [11 entries.]

I. (210.)—MRS. E. WATTS, Eastwood Park, Falfield, Glos., broken, **Golden Bracken**, born 16th January, bred by H. Walker, Stoke Bishop, Bristol; s Lizzie's Boy (13639), d Fairy Queen's Fern (Vol. 25, p. 327), s d Golden Fern's Noble (10626).

II. (25.)—MAJOR THE HON. H. PEARSON, Cowdray Park, Midhurst, Sussex, whole, **Cowdray Pioneer 5th**, born 1st April; s Pioneer's Noble (12416), d Noble's Buttercup, s d Goddington Noble 6th (11332).

III. (22.)—R. BRUCE WARD, Godington, Ashford, Kent, whole, **Martinet**, born 13th June; s Marionette's Fox (13655), d Marseillaise, s d Field-Marshal (11309).

R.—COLONEL L. G. GISBORNE, C.M.G., Lingen Hall, Brampton Bryan, whole, **Ocean Premier**, born 19th January, bred by N. Du Feu, Trinity, Jersey; s Masterman of Oaklands (5460), d Ocean Dairy Cowslip (25023), s d Dairylike's Majesty (5380).

C.—MAJOR THE HON. H. PEARSON, who'e, **Marston Cowslip's Boy**, born 22nd April, bred by W. Wilkins, Longmarston, Tring; s General Cowslip (10960), d Melbonia 3rd, s d Golden Fern's Dairyman (12640).

GUERNSEY.

(£20 towards the Prizes in the Guernsey Classes were given by the English Guernsey Cattle Society).

CLASS 116.—*Guernsey Cow, in-Milk, calved before 1919.* [8 entries.]

I. (210.)—G. BLIGHT, Tregonning, Breage, yellow, **Tregye Cora** (9738), born 23rd July, 1912, bred by the late Hon. J. Boscawen, Tregye, Per-anwell, Cornwall; s Jupiter (2046), d Cotehele Countess (7208), s d Interest (1576).

II. (25.)—MRS. R. C. BAINBRIDGE, Elfordleigh, Plympton, Devon, dark fawn, **Governs Golden**, born 18th December, 1914, bred by W. Simmons, Governs, Cornwall; s Glebe Symon, d Governs Madge.

III. (22.)—THE RIGHT HON. THE EARL OF MOUNT EDGCUMBE, Cotehele House, St. Dominic, Cornwall, red and white, **Cotehele Candy** (10578), born 5th May, 1914; s Ivory's Sequel of Vimiera (2603), d Cotehele Cherry (6823).

R.—MRS. R. C. BAINBRIDGE, fawn and white, **Tregonning Lucky**, born 30th August, 1918, bred by G. Blight, Tregonning, Cornwall.

CLASS 117.—*Guernsey Heifer, in-Milk, calved in 1919.* [6 entries.]

I. (210.)—THE VEN. ARCHDEACON RAFFLES FLINT, Nansawsan, Ladock, Cornwall, fawn and white, **Ladock Portia** (14514), born 2nd April; s Ladock Patriot (3164), d Ladock Dimple (10144), s d Trongwainton Golden Prince (2530).

II. (25.)—J. B. BODY, Hindhead Court, Hindhead, Surrey, fawn and white, **Lynchmere Glen 2nd**, born 13th February, bred by Mrs. Pratt-Barlow, Lynchmere House, Haslemere; s Polly's Ideal of Maison de Bas, d Tregonning Glen, s d Robert's Boy's Sequel.

III. (22.)—G. BLIGHT, Tregonning, Ereage, yellow and white, **Tregonning Phillis 2nd** (14823), born 27th January, bred by Captain G. H. Johnstone, Trewithen, Grampound Road; s The Abbot (3224), d Godolphin Phillis 2nd (6523), s d Squire of the Hunguets (1405 P.S., R.G.A.R.).

R.—W. ROACH, Trewidden, Penzance, lemon and white, **Cornish Prudence** (14190), born 3rd August, bred by Miss M. L. Coryton, Jursdown, Plympton; s Tregonning Masher (3423), d Pride of Tregonning (12297).

CLASS 118.—Guernsey Heifer, calved in 1920. [9 entries.]

I. (210.)—J. C. FORSTER, Clatford Mills, Andover, light red and white, **Clatford Meadow Sweet 10th** (15161 E.G.H.B.), born 21st April; s Clatford Mars (3482), d Clatford Meadow Sweet 8th (13346).

II. (25.)—MRS. R. C. BAINBRIDGE, Elfordleigh, Plympton, Devon, fawn and little white, **Elfordleigh Lime Juice**, born 26th April; s Hammell of Marazion, d Elfordleigh Lemon, s d Elfordleigh Prince Royal.

III (22.)—MRS. R. C. BAINBRIDGE, fawn and white, **Elfordleigh Empress**, born 1st May; s Trequean Emperor, d Trequean Daisy 3rd, s d Trequean Pete.

R.—W. ROACH, Trewidden, Penzance, **Trewidden Ginny** (15939), born 30th March; s Herbert of Marazion (3342), d Ginny 3rd L'Epinel (11367).

CLASS 119.—Guernsey Heifer, calved in 1921. [17 entries.]

I. (210.)—THE VEN. ARCHDEACON RAFFLES FLINT, Nansawsan, Ladock, Cornwall, fawn and white, **Ladock Lady Margaret**, born 7th August, bred by Lady M. Boscawen, Tregye, Perranwell; s Lynchmere Lord Roberts 13th (3748), d Tregye Peace (13927), s d Ladock Prince Charming (3165).

II. (25.)—T. R. BOLITHO, Trengwainton, Penzance, orange, **Trengwainton Queen Anne**, born 4th January, bred by the late Hon. J. Boscawen, Tregye; s Lynchmere Lord Roberts 13th (3748), d Tregye Queen Bess, s d Jupiter (2046).

III. (22.)—J. B. BODY, Hindhead Court, Hindhead, Surrey, fawn and white, **Norland Lady Richmond**, born 15th February, bred by G. F. Ferrand, Norland Hall, Alton; s Slogan's Climax, d Richmond's Zoc of la Ruette, s d Ivy's Emblem.

R.—LORD POLTIMORE, Court Hall, North Molton, North Devon, fawn and white, **Poltimore Mona**, born 12th April; s Pearl's Majestic (3999), d Molly 2nd of Les Blanc Bois (14609, 18988 P.S., G.R.A.S.), s d Prince of Les Blanc Bois (3803 P.S., R.G.A.S.).

V.H.C.—J. B. BODY, fawn and white, **Hindhead Polly**, born 30th May; s Bon Espoir Slogan, d Polly of the Isles of Goodnestone 3rd, s d Rose Lad of Goodnestone.

H.C.—W. ROACH, Trewidden, Penzance, lemon and white, **Trewidden Flossy 5th** (Vol. 38), born 30th July; s Trewidden Armistice (4070), d Trewidden Flossie 3rd (14882).

C.—J. C. FORSTER, Clatford Mills, Andover, light red and white, **Clatford Marie du Moulin 5th**, born 1st April; s Clatford Rosie's Sequel of Vimiera

(3873), d Clatford Marie du Moulin 4th (14165), s d Clatford Mars (3482). **F. PEARCE**, Trezelah, Gulval, Penzance, orange and white, **Trenoweth Tulip**, born 17th January, bred by T. Jenkin, Trenoweth, Gwinear; s Jack of the Villocq (3733), d Mirabelle of Beaumont (11554).

CLASS 120.—Guernsey Bull, calved in 1918 or 1919. [7 entries.]

I. (210).—G. BLIGHT, Tregonning, Breage, Helston, Cornwall, yellow **Nancothan Barton** (3768), born 5th May, 1918, bred by J. Kitchen, Burgas Bridge, Penzance; s Glebe Prim (3143), d Trewidden Preel 4th (8772), s d Godolphin Arthur (1664).

II. (25).—LORD POLTIMORE, Court Hall, North Molton, North Devon, fawn and white, **Pearl's Majestic** (3999, 4325 P.S., R.G.A.S.H.B.), born 27th April, 1919, bred by Mrs. T. de Prevost, L'Etienneerie, Castel, Guernsey; s Queen's Fancy (4038 P.S.), d Nicolle's Pearl (16975 P.S.), s d Governor's Pearl (3428 P.S.).

III. (22).—W. ROACH, Trewidden, Penzance, lemon and white, **Trewidden Armistice** (4070), born 31st August, 1919, bred by Archdeacon Raffles Flint, Nansawsan, Ladock; s Ladock Patriot (3164), d Ladock Economy (12178).

R.—J. B. BODY, Hindhead Court, Hindhead, Surrey, fawn, **Governor 4th des Ruettes**, born 23rd November, 1918, bred by Mrs. J. Natfel, Les Ruettes, St. Saviour's, Guernsey; s Polly's Governor des Ruettes, d Beauty of the Ruettes, s d Golden Noble 2nd.

CLASS 121.—Guernsey Bull, calved in 1920. [9 entries.]

I. (210).—THE VEN. ARCHDEACON RAFFLES FLINT (Ladock Bull Club), Nansawsan, Ladock, Cornwall, fawn and white, **Glencairn Daisy's Sequel** (4201), born 21st January, bred by E. F. Falla, Mount Pleasant, Castel, Guernsey; s Lenore's Sequel of Vimiera (4247), d Daisy of Mont Plaisant 10th (15208), s d Justices Sequel of the Preel (2119 P.S.).

II. (25).—J. B. BODY, Hindhead Court, Hindhead, Surrey, fawn and white, **Hindhead Peter**, born 4th August; s Bicton Plumbago, d Bighton Nacre, s d Bighton Spinel.

III. (22).—MRS. R. C. BAINBRIDGE, Elfordleigh, Plympton, South Devon, fawn and little white, **Elfordleigh Hammill**, born 4th May; s Hammill of Marazion, d Trequean Maggie 3rd, s d Trequean Arthur.

R.—A. C. BEATTY, Calehill Park, Little Chart, Kent, fawn, **Chance o' Menay**, born 6th June, bred by C. Phillips, Menay Wood, Smarden, Kent; s Rose Lad of Goodnestone, d Tregatnan Nettle.

V.H.C.—T. R. BOLITHO, Trengwainton, Penzance, orange, **Trengwainton Robin**, born 13th April, bred by G. F. Ferrand, Moreland Hall, Alton, Hants; s Sylph's Mascot (3808), d Primrose of Les Mausemarques (9128), s d Sir Alderney 2nd (2215).

CLASS 122.—Guernsey Bull, calved in 1921. [9 entries.]

I. (210).—W. ROACH, Trewidden, Penzance, lemon, **Gears Major** (Vol. 38), born 29th March, bred by Lady M. Boscawen, Tregye, Perranwell; s Lynchmere Lord Roberts 13th (3748), d Tregye Policy (13928).

II. (25.)—G. H. JOHNSTONE, Trewithen, Grampound Road, buff and white, **Trewithen Muscaris**, born 26th May; s Lynchmere Pride 4th (3752), d Trewithen Hyacinth (12472), s d Trewithen Encore (2879).

III. (22.)—A. C. BEATTY, Calehill Park, Little Chart, Kent, fawn, Calehill Butter Boy, born 4th January; s Murrell Golden Lad, d Weardale Milkmaid, s d Merton Sir William.

R.—MRS. R. C. BAINBRIDGE, Elfordleigh, Plympton, South Devon, fawn and little white, **Elfordleigh Jewel**, born 23rd July; s Queen's Jewel, d Elfordleigh Barbara, s d Elfordleigh Golden Noble.

V.H.C.—G. BLIGHT, Tregonning, Breage, Cornwall, fawn and white, **Tregonning Stanley** (Vol. 38), born 12th May; s Trezelah King (4073), d Tremeneheere Pansy (14852), s d Tremeneheere Masterpiece (3424).

H.C.—LORD POLTIMORE, Court Hall, North Molton, North Devon, fawn, and white, **Fascination's Bounty** (4601 P.S., R.G.A.S.H.B.), born 25th February bred by W. B. Langlois, Les Caches, St. Peter's, Guernsey; s Foch de la Fontaine (4241 P.S.), d Fascination of Les Caches (4132 P.S. and A.R. 26).

CHALLENGE CUP.

(GIVEN THROUGH THE ENGLISH GUERNSEY CATTLE SOCIETY BY CAPTAIN G. H. JOHNSTONE).

The "Trewithen Challenge Cup" for the best Bull exhibited in Classes 120 to 122 whose dam and sire's dam had qualified in accordance with the standard required for entry in the Milk Records of the English Guernsey Cattle Society, both in Milk and butter-fat, or alternately in either milk or butter-fat with 30 per cent. above the requirements for entry. Only the official test of the E.G.C.S., R.G.A.S., or the Ministry of Agriculture was accepted.

The Cup to be won three years in succession by the same exhibitor before becoming his absolute property.

I.—THE VEN. ARCHDEACON RAFFLES FLINT (Ladock Bull Club), Nansawsan, Ladock, Cornwall, fawn and white, **Glencairn Daisy's Sequel** (4201), born 21st January, bred by E. F. Falla, Mount Plaisant, Castel, Guernsey; s Lenore's Sequel of Vimiera (4247), d Daisy of Mont Plaisant 10th (15208), s d Justines Sequel of the Preel (2119 P.S.).

R.—G. H. JOHNSTONE, Trewithen, Grampound Road, buff and white, **Trewithen Muscaris**, born 26th May; s Lynchmere Pride 4th (3752), d Trewithen Hyacinth (12472), s d Trewithen Encore (2879).

DEXTER.

CLASS 123.—*Dexter Cow or Heifer, in-Milk, calved in or before 1919.*
[14 entries.]

I. (210.)—LADY K. HARE, Brokenhurst Park, Hants, black, **Peach Blossom of Claragh** (2535), born 21st February, 1917, bred by Capt. P. E. Benn, Mill Street, Co. Cork; s Gort Ned (607), d Gort Peach 9th (2496), s d Gort Ned 5th (607).

II. (25.)—A. C. KING, Braishfield Manor, Romsey, Hants, black, **La Mancha Madeline** (2272), born March, 1913.

III. (22.)—H. G. JONES, Downford, Mayfield, Sussex, black, **Downford Dinah**, born 3rd December, 1918; s **La Mancha Jack Tar**, d **Fraser Fancy**, s d **Sir Robert Anderson, Bart.**

R.—H. G. JONES, black, **Downford Dentzia**, born June, 1918.

V.H.C.—MRS. F. A. BROWN, Bourton Hill House, Moreton-in-Marsh, Glos., red, **Sunlight of Bourton Hill** (entered by Inspection, Vol. 22), born 1919.—E. P. PEYTON, Woodcote Lodge, near Kenilworth, black, **Patti 5th** (2662), born 21st January, 1918; s **Grinstead Tramp** (545), d **Patti 2nd** (2142), s d **Paganini** (532).

C.—REV. W. W. JOYCE, Charles Rectory, North Devon, black. **Charlotte**, born 3rd December, 1917; s **Black Jack** (579), d **Marion** (1632), s d **Autumn Prince** (556).—E. P. PEYTON, black, **Pierrette 2nd** (2284), born 29th April, 1915; s **Paderewski** (531), d **Pierrette** (2143), s d **Pag inini** (532).

CLASS 124. *Dexter Heifer, calved in 1920 or 1921.* [14 entries.]

I. (210.) LADY K. HARE, Brokenhurst Park, Hants, black, **Brokenhurst Woodbine** (271), born 9th February, 1920; s **Brokenhurst Rufus** (601), d **Gort Woodbine** 9th (2498), s d **Gort Fred** (569).

II. (25.)—E. P. PEYTON, Woodcote Lodge, near Kenilworth, black, **Polaire 3rd** (2793), born 18th April, 1920; s **Brokenhurst Coy Boy** (539), d **Polaire** (2144), s d **Oakridge Rex** (366).

III. (22.)—T. A. STEPHENS, Hookstile House, South Godstone, Surrey, black, **Hookstile Lady Macbeth**, born 30th June, 1920; s **Summerhill George** (685), d **Gamma** (2108), s d **Cowbridge General** (385).

R. T. A. STEPHENS, black, **Hookstile Claribel**, born 20th February, 1920; s **Summerhill Eric** (621), d **Summerhill Edith** (2672), s d **Summerhill Caesar** (609).

V.H.C.—SIR W. EVANS, BART., Wightwick Hall, Wolverhampton, black, **Wightwick Baby**, born 3rd May, 1921; s **Oakridge Pat**, d **Wightwick Biddy**.—LADY K. HARE, black, **Brokenhurst Tinkle 2nd** (2710), born 21st April, 1920; s **Brokenhurst Rufus** (601), d **Brokenhurst Tinkle** (2393), s d **Oakridge Grandaddy** (510).

C.—MRS. F. A. BROWN, Bourton Hill House, Moreton-in-Marsh, Glos., black, **Bourton Hill Precious**, born 8th November, 1920; s **La Mancha Tiny Tim**, d **La Mancha Wendy**.—E. DAVIES, Pontarfran, Brecon, black, **Pontarfran Buntz**, born 8th April, 1921; s **Bagendon Interpreter** (641), d **Pontarfran Patti** (2795), s d **Brokenhurst Coy Boy** (539).—H. G. JONES, Downford, Mayfield, Sussex, black, **Downford Delvina**, born September, 1920.

CLASS 125.—*Dexter Bull, calved in 1919, 1920 or 1921.* [10 entries.]

I. (210.)—MRS. F. A. BROWN, Bourton Hill House, Moreton-in-Marsh, black, **Bourton Hill Jock**, born 19th April, 1920; s **La Mancha Tiny Tim**, d **La Mancha Well-Well**.

Prizes awarded to Dexter Cattle.

II. (£5.)—E. DAVIES, Pontarfran, Brecon, black, **Pontarfran Rifleman**, born 29th January, 1920 ; s Fillongley Forester (630), d Ardudwy (2381), s d Fillongley Foreman (562).

III. (£2.)—J. H. WOOTTON, Byford, near Hereford, black, **Byford Jove**, born 17th February, 1921 ; s Bryn Lavengro (696), d Byford Phoeby (2727).

R.—H. G. JONES, Downford, Mayfield, Sussex, black, **Downford Boson**, born 7th April, 1920 ; s Downford Dandy (655), d Downford Daisy (2609).

H.C.—A. C. KING, Braishfield Manor, Romsey, Hants, black, **Braishfield Marco**, born 22nd October, 1920 ; s Black Mark (643), d Braishfield Madeline (2456), s d La Mancha Tiny Tim (569).

C.—REV. W. W. JOYCE, Charles Rectory, North Devon, black, **Jan Ridd of Exmoor**, born 31st May, 1921 ; s Luck Money (612), d Jessica 19th (52), s d Black Jack (579).

(The Prizes in Class 126 were given by the English Kerry and Dexter Cattle Society).

CLASS 126.—*Dexter Bull, calved in 1921, whose sire and dam were entered in the English Kerry and Dexter or Royal Dublin Society's Herd Book.* [9 entries.]

I. (£10.)—LADY K. HARE, Brokenhurst Park, Hants, black, **Brokenhurst Philip** (Vol. 22), born 13th March ; s Brokenhurst Marella (651), d Peach Blossom of Claragh (2535), s d Gort Ned 5th (607).

II. (£3.)—J. H. WOOTTON, Byford, Hereford, black, **Byford Laddie**, born 16th April ; s Byford Banner (697 Vol. 21), d Byford Blackberry (2723, Vol. 21).

III. (£2.)—LADY K. HARE, black, **Brokenhurst Florian** (Vol. 22), born 16th March ; s Brokenhurst Morella (651), d Brokenhurst Flora (1856), s d Cloister (463).

R.—REV. W. W. JOYCE, Charles Rectory, North Devon, black, **Jan Ridd of Exmoor**, born 31st May, 1921 ; s Luck Money (612), d Jessica 19th (52), s d Black Jack (579).

C.—E. DAVIES, Pontarfran, Brecon, black, **Pontarfran Hotspur**, born 8th March ; s Bagendon Interpreter (641), d Fillonley Foxglove (2246 F.S.).—T. A. STEPHENS, Hookstile House, South Godstone, Surrey, black, **Hever Rex**, born 11th March, bred by Colonel the Hon. Ben Bathurst ; s Brockhampton Monarch (693), d Epsilon (Vol. 22, p. 65), s d Hever Boy (610).

SPECIAL PRIZE.

GIVEN BY THE ENGLISH KERRY AND DEXTER CATTLE SOCIETY.

The Devonshire Challenge Cup, for the best Animal in Classes 123 to 126, bred by Exhibitor, and entered in or eligible for the English Kerry and Dexter Herd Book. The Cup to be won by the same Exhibitor with different Animals three years in succession before becoming his absolute property.

The Certificate of Award of the English Kerry and Dexter Cattle Society will be given to the owner of the winning animal on each occasion the Cup is competed for.

I.—**MRS. F. A. BROWN**, Bourton Hill House, Moreton-in-Marsh, black, **Bourton Hill Jock**, born 19th April, 1920 ; s **La Mancha Tiny Tim**, d **La Mancha Well-Well**.

R.—**LADY K. HARE**, Brokenhurst Park, Hants, black, **Brokenhurst Philip** (Vol. 22), born 13th March ; s **Brokenhurst Marella** (651), d **Peach Blossom of Claragh** (2535), s d **Gort Ned** 5th (607).

MILK TEST.

(See Regulation 64).

CLASS 127.—*Cow, in-Milk, of any breed or cross, under 950lbs. live weight, yielding the largest quantity of milk, of normal character, containing at each time of milking, 12 per cent. of total solids, of which not less than 3 per cent. shall be fat, the period of lactation being taken into consideration.* [32 entries.]

I. (210.)—**MRS. RUDD**, Felbridge Park Farm, East Grinstead, **Cgynus 3rd**, born 21st September, 1916, bred by H. K. Thompson, Owving House, Aylesbury ; s **Daystar**, d **Swansea**, s d **Swansdown**. (Last calf January 25, 1922).

II. (25.)—**R. BRUCE WARD**, Godington, Ashford, Kent, whole, **Elfrida**, born 26th June, 1917, bred by Countess Roberts, Englemere, Ascot ; s **Gipsy's Castor** (12316), d **Gazefreda**, s d **Gazehound** (10614).

III. (22.)—**R. BRUCE WARD**, whole, **Piquant**, born 21st April, 1919 ; s **Prometheus** (13391), d **Caper**, s d **Capsicum** (10892).

CLASS 128.—*Cow in-Milk, of any breed or cross. 950lbs. live weight or over, yielding the largest quantity of milk, of normal character, containing at each time of milking, 12 per cent. of total solids, of which not less than 3 per cent. shall be fat, the period of lactation being taken into consideration.* [32 entries.]

I. (210.)—**W. G. BUSK**, Wraxall Manor, Dorchester, Dorset, **Wraxall Bluebell A.** (543), born 1915, bred by H. Gordie, Chilfrome, Dorchester. (Last calf April 5, 1921).

II. (25.)—**J. H. CHICK**, Wynford Eagle, Dorchester, Dorset, **Wynford Pill C** (292), born 23rd July, 1913 ; s **Compton Moses** (7015), d **Wynford Pink** (13753), s d **Compton Rattler** (6309). (Last calf May 14, 1922).

III. (22.)—**T. CUNDY & SON**, Devonshire Dairy, Benbow Street, Devonport, **Rosebud**, born 28th October, 1916 ; s **Forest Rose** (3742), d **Golden Cup** (13793). (Last calf, April 10, 1922).

R. & H.C.—**MRS. EVELYN**, Wotton House, Dorking, broken, **Fairlawne Hussy**, born 8th August, 1916, bred by W Cazalet, Fairlawne, Tonbridge ; s **Sir Toby** (12154), d **Hussy** 13 h (Imp), s d **MacDougall** (9333).

SPECIAL PRIZES.

GIVEN BY THE ENGLISH KERRY AND DEXTER CATTLE SOCIETY.

Gold, Silver and Bronze Medals for the three best Dexter Cows competing in Classes 127 and 128.

Gold Medal.—A. C. KING, Braishfield Manor, Romsey, Hants, black, **La Mancha Madeline** (2272), born March, 1913.

Silver Medal.—E. P. PEYTON, Woodcote Lodge, near Kenilworth, black, **Pierrette 2nd**, (2284), born 29th April, 1915, s Padorowski (531), d Pierrette (2143), s d Paganini (532).

Bronze Medal.—T. A. STEPHENS, Hookstile House, South Godstone, Surrey black, **Hookstile Lady Macbeth**, born 30th June, 1920; s Summerhill George (685), d Gamma (2108), s d Cowbridge General (385).

CLASS 129.—*Red Poll Cow or Heifer, under 950lbs. live weight, yielding the largest quantity of milk, of normal character, containing at each time of milking, 12 per cent. of total solids, of which not less than 3 per cent. shall be fat, the period of lactation being taken into consideration.—First prize, £10—second, £5.—third, £2.*
[3 entries.]

[NO AWARD.]

BUTTER TEST.

(The Prizes in Class 130 were given by the English Jersey Cattle Society, and in Class 131 by the English Guernsey Cattle Society, and entries in them were subject to any conditions issued by these Societies previous to the tests).

CLASS 130.—*Cow, eligible for or entered in the English Jersey Herd Book, obtaining the greatest number of points by the practical test of the separator and churn, judged by the scale of points adopted by the English Jersey Cattle Society.* [10 entries.]

Certificates of Merit were also awarded to Cows under 5 years old obtaining 30 points, and to Cows 5 years old or over obtaining 35 points.

I. (Gold Medal or £10.)—MRS. RUDD, Felbridge Park Farm, East Grinstead, **Ogynus 3rd**, born 21st September, 1916, bred by H. K. Thompson, Owving House, Aylesbury; s Daystar, d Swansea, s d Swansdown. (Last calf January 15, 1922).

II. (Silver Medal.)—MRS. EVELYN, Wotton House, Dorking, broken, **Fairlawne Hussy**, born 8th August, 1916, bred by W. Cazalet, Fairlawne, Tonbridge; s Sir Toby (12154), d Hussy 13th (Imp.), s d MacDougal (9333). (Last calf February 6, 1922).

III. (Bronze Medal.)—SIR G. S. WHITE, BART., Hollywood Tower, near Bristol, whole, **Freasia of Hollywood**, born 22nd May, 1917; s Hero of Hollywood (12026), d Fancy Fortuna 2nd, s d Golden Fern's Togo (11706). (Last calf January 16th, 1922).

Certificate of Merit.—R. BRUCE WARD, Godington, Ashford, Kent, whole, **Elfrida**, born 26th June, 1917, bred by Countess Roberts, Englemere, Ascot ; s Gipsy's Castor (12316), d Gazefreda, s d Gazehound (10614). —whole, **Piquant**, born 21st April, 1919 ; s Prometheus (13391), d Caper, s d Capsicum (10892).

CLASS 131.—*Cow, eligible for or entered in the English Guernsey Herd Book, obtaining the greatest number of points by the practical test of the separator and churn, judged by the scale of points adopted by the English Guernsey Cattle Society.*

I. (25).—VEN. ARCHDEACON RAFFLES FLINT, Nansawsam, Ladoek, Cornwall, fawn and white, **Ladoek Princess Maud** (12887), born 11th April, 1917 ; s Ladoek Patriot (3164), d Ladoek Princess (7333), s d True Boy (1728).

II. (23).—MRS. R. C. BAINBRIDGE, Elfordleigh, Plympton, Devon, dark fawn, **Governs Golden**, born 18th December, 1914, bred by W. Simmons, Governs, Cornwall ; s Glebe Symon, d Governs Madge. (Last calf January 9, 1922).

III. (22).—MRS. R. C. BAINBRIDGE fawn and white, **Tregonning Lucky**, born 30th August, 1918, bred by G. Blight, Tregonning, Cornwall. (Last calf February 4, 1922).

SHEEP.

DEVON LONGWOOLLED.

CLASS 132.—*Devon Longwoolled Ram, two-shear and upwards.* [2 entries.]

I. (27).—F. WHITE, Torweston, Williton, Somerset.

II. (24).—F. WHITE, bred by R. Cook, Crazelowman, Tiverton.

CLASS 133.—*Devon Longwoolled Shearling Ram.* [8 entries.]

I. (210).—T. J. PEARCEY, Peadhill, Tiverton.

II. (25).—T. J. PEARCEY.

III. (22).—F. WHITE, Torweston, Williton, Somerset.

R.—W. HANCOCK, New Barn, Kingsnympton, Chulmleigh.

H.C.—F. WHITE.

CLASS 134.—*Pair of Devon Longwoolled Ram Lambs, dropped in 1922.* [4 entries.]

I. (27).—W. BRENT & SON, Clampit, Callington, Cornwall.

II. (24).—F. WHITE, Torweston, Williton, Somerset.

III. (22).—F. WHITE.

R.—J. M. KITTOW, Trossell Farm, North Petherwin, Egloskerry, R.S.O.

liv *Prizes awarded to Devon Longwoolled and South Devon Sheep.*

CLASS 135.—*Pen of Devon Longwoolled Shearling Ewes.* [2 entries.]

I. (210.)—F. WHITE, Torweston, Williton, Somerset.

II. (25.)—F. WHITE.

CLASS 136.—*Pen of three Devon Longwoolled Ewe Lambs, dropped in 1922.* [3 entries.]

I. (27.)—F. WHITE, Torweston, Williton, Somerset.

II. (24.)—W. BRENT & SON, Clampit, Callington, Cornwall.

II. (22.)—J. M. KITROW, Trossell Farm, North Petherwin, Egloskerry, R.S.O.

SOUTH DEVON.

The First Prize in Class 137 was given by the South Devon Flock Book Association.

CLASS 137.—*South Devon Ram, two-shear and upwards.* [3 entries.]

I. (210.)—J. R. HALLETT, Sherford, Brixton, near Plymouth.

II. (25.)—P. G. BROWN, Tremadart, Duloe, Cornwall.

III. (22.)—W. HAWKE, JUN., Trebudannon, St. Columb, Cornwall, bred by W. T. Sobey, Liskeard.

CLASS 138.—*South Devon Shearling Ram.* [8 entries.]

I. (210.)—P. G. BROWN, Tremadart, Duloe, Cornwall.

II. (25.)—J. R. HALLETT, Sherford, Brixton, Plymouth.

III. (22.)—J. R. HALLETT.

R.—W. HAWKE, JUN., Trebudannon, St. Columb, Cornwall.

H.C.—C. ROSKILLY, Trewolland, near Liskeard.

CLASS 139.—*Pair of South Devon Ram Lambs, dropped in 1922.* [6 entries.]

I. (27.)—W. HAWKE, JUN., Trebudannon, St. Columb.

II. (24.)—J. B. EDWARDS, Upton Barton, South Milton, Kingsbridge.

III. (22.)—C. ROSKILLY, Trewolland, near Liskeard.

R.—J. W. SYMONS, East Sherford, Brixton, near Plymouth.

H.C.—J. R. HALLETT, Sherford, Brixton, near Plymouth.

CHALLENGE CUP.

GIVEN BY A DEVONIAN THROUGH THE SOUTH DEVON FLOCK BOOK ASSOCIATION IN CONJUNCTION WITH THE DEVON COUNTY AGRICULTURAL ASSOCIATION.

A Silver Challenge Cup, value £21, for the best registered Ram in the South Devon Classes. The Cup to be won by the same exhibitor three times in succession, or four times at intervals, before becoming his absolute property.

I.—J. R. HALLETT, Sherford, Brixton, near Plymouth.

CLASS 140.—*Pen of three South Devon Shearling Ewes.* [1 entries.]

I. (£10.)—W. HAWKE, JUN., Trebudannon, St. Columb.

II. (£5.)—C. ROSKILLY, Trewolland, near Liskeard.

III. (£2.)—J. B. EDWARDS, Upton Barton, South Milton, Kingsbridge.

CLASS 141.—*Pen of three South Devon Ewe Lambs, dropped in 1922.*
[2 entries.]

I. (£7.)—C. ROSKILLY, Trewolland, near Liskeard.

II. (£4.)—J. W. SYMONS, East Sherford, Brixton, near Plymouth.

KENT OR ROMNEY MARSH.

(The Prizes in Class 142 were given by the Kent or Romney Marsh Sheep Breeders' Association).

CLASS 142.—*Kent or Romney Marsh Two-Shear Ram.* [5 entries.]

I. (£10.)—J. E. QUESTED, The Firs, Cheriton, Kent.

II. (£5.)—L. H. and G. W. FINN, Westwood Court, Faversham, Kent.

III. (£2.)—THE EARL OF GUILDFORD, Waldeshare Park, Dover.

H.C.—L. H. and G. W. FINN.

C.—J. E. QUESTED.

CLASS 143.—*Kent or Romney Marsh Shearling Ram.* [8 entries.]

I. (£10.)—J. E. QUESTED, The Firs, Cheriton, Kent.

II. (£5.)—L. H. and G. W. FINN, Westwood Court, Faversham, Kent.

III. (£2.)—THE EARL OF GUILDFORD, Waldershare Park, Dover.

B. & H.C.—THE EARL OF GUILDFORD.

H.C.—L. H. and G. W. FINN.

C.—L. H. and G. W. FINN.

Ivi Prizes awarded to Kent or Romney Marsh and Southdown Sheep.

CLASS 144.—*Pair of Kent or Romney Marsh Ram Lambs, dropped in 1922.* [6 entries.]

I. (£10.)—L. H. AND G. W. FINN, Westwood Court, Faversham, Kent.

II. (£5.)—L. H. AND G. W. FINN.

III. (£2.)—THE EARL OF GUILFORD, Waldershare Park, Dover.

B.—J. E. QUESTED, The Firs, Cheriton, Kent.

CLASS 145.—*Pen of three Kent or Romney Marsh Shearling Ewes.* [6 entries.]

I. (£10.)—THE EARL OF GUILFORD, Waldershare Park, Dover.

II. (£5.)—L. H. AND G. W. FINN, Westwood Court, Faversham, Kent.

III. (£2.)—J. E. QUESTED, The Firs, Cheriton, Kent.

B. & H.C.—J. E. QUESTED.

H.C.—THE EARL OF GUILFORD.

C.—L. H. AND G. W. FINN.

SOUTHDOWN.

(The Prizes in Class 146 and the Silver Medal were given by the Southdown Sheep Society, subject to there being at least three competitors for the prizes).

CLASS 146.—*Southdown Two-Shear Ram.* [2 entries.]

I. (£10.)—LADY FITZGERALD, Buckland, Faringdon, Berks.

II. (£5.)—SIR J. COLMAN, BART., Gatton Park, Surrey.

CLASS 147.—*Southdown Shearling Ram.* [2 entries.]

I. (£10.)—LADY FITZGERALD, Buckland, Faringdon, Berks.

II. (£5.)—SIR J. COLMAN, BART., Gatton Park, Surrey.

CLASS 148.—*Pair of Southdown Ram Lambs, dropped in 1922.* [2 entries.]

I. (£10.)—LADY FITZGERALD, Buckland, Faringdon, Berks.

II. (£5.)—SIR J. COLMAN, BART., Gatton Park, Surrey.

SPECIAL PRIZE.

GIVEN BY THE SOUTHDOWN SHEEP SOCIETY, UNDER CONDITION 67.
Silver Medal or £1 for the best Ram or Ram Lamb in Classes 146, 147 and 148.

I.—LADY FITZGERALD, Buckland, Faringdon, Berks.

B.—SIR J. COLMAN, BART., Gatton Park, Surrey.

CLASS 149.—*Pen of three Southdown Shearling Ewes.* [1 entry.]

I. (#10.)—SIR J. COLMAN, BART., Gatton Park, Surrey.

HAMPSHIRE DOWN.

(The Prizes in Class 151 and the Champion Prize were given by the Hampshire Down Sheep Breeders' Association).

CLASS 150.—*Hampshire Down Shearling Ram.* [7 entries.]

I. (#10.)—MRS. JERVOISE, Herriard Park, Basingstoke.

II. (#5.)—V. T. THOMPSON, Norton Manor, Sutton Scotney.

III. (#2.)—J. WHITE, Foxhill Estate, Swindon, Wilts.

R.—V. T. THOMPSON.

H.C.—W. M. WILLS, Estate Office, Bracken Hill, Leigh Woods, near Bristol.

CLASS 151.—*Hampshire Down Ram Lamb, dropped in 1922.* [6 entries.]

I. (#7.)—MAJOR J. A. MORRISON, D.S.O., Basildon Park, Goring, Reading, Berks.

II. (#5.)—V. T. THOMPSON, Norton Manor, Sutton Scotney.

III. (#3.)—MRS. JERVOISE, Herriard Park, Basingstoke.

R.—V. T. THOMPSON.

V.H.C.—MAJOR J. A. MORRISON, D.S.O.

H.C.—J. WHITE, Foxhill Estate, Swindon, Wilts.

CLASS 152.—*Pair of Hampshire Down Ram Lambs, dropped in 1922.* [5 entries.]

I. (#10.)—MAJOR J. A. MORRISON, D.S.O., Basildon Park, Goring, Reading, Berks.

II. (#5.)—V. T. THOMPSON, Norton Manor, Sutton Scotney.

III. (#2.)—MRS. JERVOISE, Herriard Park, Basingstoke.

R.—J. WHITE, Foxhill Estate, Swindon, Wilts.

CHAMPION PRIZE.

Best Pen of Lambs in Classes 151 and 152.

(Single Ram Lamb to constitute a Pen).

I. (#5.)—MAJOR J. A. MORRISON, D.S.O., Basildon Park, Goring, Reading, Berks.

R.—MAJOR J. A. MORRISON, D.S.O.

lviii *Prizes awarded to Oxford Down and Dorset Horn Sheep.*

CLASS 153.—*Pen of three Hampshire Down Shearling Ewes.* [3 entries.]

I. (£10.)—MAJOR J. A. MORRISON, D.S.O., Basildon Park, Goring, Reading, Berks.

II. (£5.)—MAJOR J. A. MORRISON, D.S.O.

III. (£2.)—J. WHITE, Foxhill Estate, Swindon, Wilts.

OXFORD DOWN.

CLASS 154.—*Oxford Down Shearling Ram.* [6 entries.]

I. (£10.)—H. W. STILGOE, The Grounds, Adderbury, near Banbury, Oxon.

II. (£5.)—H. W. STILGOE.

III. (£2.)—H. W. STILGOE.

B. & H.C.—W. TREVETHAN, Broadstone Hill, Chipping Norton, Oxon., bred by Exors. of J. W. Richards, Tracey.

C.—W. TREVETHAN.

CLASS 155.—*Pair of Oxford Down Ram Lambs, dropped in 1922.* [2 entries.]

I. (£10.)—F. PENSON, Taston, Charlbury, Oxon.

II. (£5.)—H. W. STILGOE, The Grounds, Adderbury, near Banbury, Oxon.

CLASS 156.—*Pen of three Oxford Down Shearling Ewes.* [3 entries.]

I. (£10.)—F. PENSON, Taston, Charlbury, Oxon.

II. (£5.)—H. W. STILGOE, The Grounds, Adderbury, near Banbury, Oxon.

III. (£2.)—W. TREVETHAN, Broadstone Hill, Chipping Norton, Oxon.

The Prizes in Class 157 were given by the Oxford Down Sheep Breeders' Association and were withheld until the Animals awarded the Prizes were registered in the Flock Book.

CLASS 157.—*Pair of Oxford Down Ewe Lambs, dropped in 1922.* [2 entries.]

I. (£5.)—F. PENSON, Taston, Charlbury, Oxon.

II. (£3.)—H. W. STILGOE, The Grounds, Adderbury, near Banbury, Oxon.

DORSET HORN.

(The Animals entered in Classes 158 and 160 must have been shorn bare in the year of the Show).

CLASS 158.—*Dorset Horn Shearling Ram.* [2 entries.]

I. (£10.)—F. J. MERSON & SON, Farringdon, North Petherton, Bridgwater.

II. (£5.)—F. J. MERSON & SON.

CLASS 159.—*Pair of Dorset Horn Ram Lambs, dropped after November 1st, 1921.* [2 entries.]

II. (25.)—C. MORRIS, Highfield, St. Albans, and Bishops Lydeard, Taunton.

CLASS 160.—*Pen of three Dorset Horn Shearling Ewes.* [3 entries.]

I. (210.)—A. A. BROUGHTON, Impens, North Petherton, Bridgwater.

II. (25.)—C. MORRIS, Highfield, St. Albans and Bishops Lydeard, Taunton.

III. (22.)—A. A. BROUGHTON.

(The Prizes in Class 161 were given by the Dorset Horn Sheep Breeders' Association).

CLASS 161.—*Pen of three Dorset Horn Ewe Lambs, dropped after November 1st, 1921.* [2 entries.]

I. (210.)—A. JOHNSON, Symondsburry, near Bridport, Dorset.

II. (25.)—C. MORRIS, Highfield, St. Albans, and Bishops Lydeard, Taunton

DORSET DOWN.

(The Prizes in Class 162 were given by the Dorset Down Sheep Breeders' Association).

CLASS 162.—*Dorset Down Shearling Ram.* [2 entries.]

I. (210.)—R. N. TORY, Anderson, Blandford.

II. (23.)—R. N. TORY.

CLASS 163.—*Pair of Dorset Down Ram Lambs, dropped in 1922.* [3 entries.]

I. (210.)—R. N. TORY, Anderson, Blandford.

II. (25.)—T. R. SPILLER, Luccombe Farm, Milton Abbas, Blandford.

III. (22.)—T. R. SPILLER.

CLASS 164.—*Pen of three Dorset Down Shearling Ewes.* [3 entries.]

I. (210.)—T. R. SPILLER, Luccombe Farm, Milton Abbas, Blandford.

II. (25.)—R. N. TORY, Anderson, Blandford.

III. (22.)—T. R. SPILLER.

EXMOOR HORN.

(The First Prize in Class 165 was given by the Exmoor Horn Sheep Breeders' Society).

CLASS 165.—*Exmoor Horn Ram, two shear and upwards.* [4 entries.]

I. (210.)—MINISTRY OF AGRICULTURE AND FISHERIES, Amesbury Farm Settlement, Amesbury, Wilts, bred by T. C. Pearce, Leigh, Dulverton, Somerset.

II. (25.)—F. C. GILL, Wistland Farm, Kentisbury, Barnstaple, bred by D. N. Purchase, Great Hele Barton, South Molton.

lx *Prizes awarded to Exmoor Horn and Dartmoor Sheep.*

III. (22.)—J. ROBINS, Walloyer Barton, near Bratton-Fleming, Barnstaple, bred by W. Winzer, Exford.

R.—F. C. GILL, bred by J. Harris, Wistland Pound, Kentisbury.

CLASS 166.—*Exmoor Horn Shearling Ram.* [5 entries.]

I. (210.)—O. T. AND A. F. ROBINS, Lydcott Hall, High Bray, South Molton.

II. (25.)—J. HARRIS, Wistland Pound, Kentisbury, Barnstaple.

III. (22.)—J. HARRIS.

R.—MINISTRY OF AGRICULTURE AND FISHERIES, Amesbury Farm Settlement, Ratfyn, Amesbury, Wilts.

H.C.—MINISTRY OF AGRICULTURE AND FISHERIES.

CLASS 167.—*Pair of Exmoor Horn Ram Lambs, dropped in 1922.*
[3 entries.]

I. (27.)—O. T. AND A. F. ROBINS, Lydcott Hall, High Bray, South Molton.

II. (24.)—J. HARRIS, Wistland Pound, Kentisbury, Barnstaple.

III. (22.)—F. C. GILL, Wistland Farm, Kentisbury, Barnstaple.

CLASS 168.—*Pen of three Exmoor Horn Shearling Ewes.* [7 entries.]

I. (210.)—O. T. AND A. F. ROBINS, Lydcott Hall, High Bray, South Molton.

II. (25.)—J. HARRIS, Wistland Pound, Kentisbury, Barnstaple.

III. (22.)—P. EVERARD, Milton, Dulverton, Somerset.

R.—P. EVERARD.

H.C.—F. C. GILL, Wistland Farm, Kentisbury, Barnstaple.

C.—MINISTRY OF AGRICULTURE AND FISHERIES, Amesbury Farm Settlement, Ratfyn, Amesbury, Wilts.—MINISTRY OF AGRICULTURE AND FISHERIES.

CLASS 169.—*Pen of three Exmoor Horn Ewe Lambs, dropped in 1922.*
[1 entry.]

I. (27.)—J. HARRIS, Wistland Pound, Kentisbury, Barnstaple.

DARTMOOR.

(£10 towards the prizes in Classes 170 to 174 were given by the Dartmoor Sheep Breeders' and Flock Book Association).

CLASS 170.—*Dartmoor Ram, two shear and upwards, shown out of wool.* [4 entries.]

I. (210.)—R. P. LUCE, Lower Chaddlehanger, Tavistock, Devon.

II. (25.)—J. M. COLE & SONS, Chaddlehanger, Tavistock, bred by J. Spry, Lamerton.

III. (22.)—W. A. JOHNS & SONS, Cleeve, Kelly, Lifton, bred by Squires and Sons, Ashburton.

R.—R. S. LUSCOMBE, Wisdome, Cornwood, bred by E. B. Yelland, Tor Park, Brenton.

CLASS 171.—*Dartmoor Shearling Ram, shown out of wool.* [7 entries.]

I. (£10.)—R. P. LUCE, Lower Chaddlehanger, Tavistock, Devon.

II. (£5.)—R. R. DAWE, Ford Farm, Sydenham Dameral.

III. (£2.)—R. P. LUCE.

R.—R. S. LUSCOMBE, Wisdome, Cornwood.

CLASS 172. *Pair of Dartmoor Ram Lambs, dropped in 1922, shown in wool.* [10 entries.]

I. (£7.)—R. R. DAWE, Ford Farm, Sydenham Dameral.

II. (£4.)—J. WOTTON, Dunwell, Ugborough, Ivybridge.

III. (£2.)—J. R. T. KINGWELL & SONS, Great Aish, South Brent, Devon.

R.—R. P. LUCE, Lower Chaddlehanger, Tavistock, Devon.

V.H.C.—THE GOVERNOR, H.M. PRISON, Dartmoor, bred by The Commissioners, Home Office, Whitehall, London.

H.C.—J. H. GLOVER, Cornwood, South Devon.

CLASS 173.—*Pen of three Dartmoor Shearling Ewes, shown in wool.* [4 entries.]

I. (£10.)—J. WOTTON, Dunwell, Ugborough, Ivybridge.

II. (£5.)—H. RICH, Eastcott, Coryton, Lew Down, Devon.

III. (£2.)—R. TRANT, Ford Farm, Coryton, Lew Down.

R.—T. ROSKILLY, Pittescombe, Lamerton, Tavistock, Devon.

CLASS 174.—*Pen of three Dartmoor Ewe Lambs, dropped in 1922, shown in wool.* [6 entries.]

I. (£7.)—J. WOTTON, Dunwell, Ugborough, Ivybridge.

II. (£4.)—THE GOVERNOR, H.M. PRISON, Dartmoor, bred by the Commissioners, Home Office, Whitehall, London.

III. (£2.)—J. R. T. KINGWELL & SONS, Great Aish, South Brent, Devon.

R.—R. TRANT, Ford Farm, Coryton, Lew Down.

SPECIAL PRIZES.

GIVEN BY COL. G. CRAVEN HOYLE AND THE PLYMOUTH LOCAL COMMITTEE.

For the three best Animals in Classes 170 to 174, that had not won a Prize previous to June 1st, 1922, the property of a resident within 30 miles of Plymouth.

I. (Silver Cup, value £5 5s.)—J. WOTTON, Dunwell, Ugborough, Ivybridge.

II. (£3.)—H. RICH, Eastcott, Coryton, Lew Down, Devon.

III. (£2.)—R. R. DAWE, Ford Farm, Sydenham Dameral.

R.—R. TRANT, Ford Farm, Coryton, Lew Down.

SUFFOLK.

(£25 towards the Prizes in Classes 175 to 177 were given by the Suffolk Sheep Society).

CLASS 175.—*Suffolk Shearling Ram.* [5 entries.]

I. (£10).—SIR F. H. BATHURST, BART., Somborne Park, Stockbridge, Hants.

II. (£5).—SIR F. BATHURST, BART., bred by G. B. Shields, Dolphingstone, Travent.

CLASS 176.—*Pair of Suffolk Ram Lambs, dropped in 1922.* [5 entries.]

I. (£10).—SIR F. H. BATHURST, BART., Somborne Park, Stockbridge, Hants.

II. (£5).—SIR F. H. BATHURST, BART.

III. (£2).—W. G. BUCHANAN, Manor House Farm, Abergavenny.

CLASS 177.—*Pen of three Suffolk Ewe Lambs, dropped in 1922.* [4 entries.]

I. (£10).—SIR F. H. BATHURST, BART., Somborne Park, Stockbridge, Hants.

II. (£5).—W. G. BUCHANAN, Manor House Farm, Abergavenny.

RYELAND.

(£15 of the Prizes in Classes 178 to 180 were given by the Ryeland Sheep Society).

CLASS 178.—*Ryeland Shearling Ram.* [3 entries.]

I. (£7).—T. L. MARTIN, Ashe Warren House, near Basingstoke, Hants.

II. (£4).—J. R. N. WATERS, Fawke Farm, Sevenoaks.

CLASS 179.—*Pair of Ryeland Ram Lambs, dropped in 1922.* [2 entries.]

I. (£7).—J. R. N. WATERS, Fawke Farm, Sevenoaks.

II. (£4).—T. L. MARTIN, Ashe Warren House, near Basingstoke.

CLASS 180.—*Pen of three Ryeland Shearling Ewes.* [2 entries.]

I. (£7).—T. L. MARTIN, Ashe Warren House, near Basingstoke, Hants.

II. (£4).—J. R. N. WATERS, Fawke Farm, Sevenoaks.

GOATS.

(£16 7s. 6d. towards the Prizes in Classes 181 to 187 and the Special Prizes, were given by or through the British Goat Society).

CLASS 181.—*Female Goat, Swiss, including Toggenburg, Anglo-Swiss, British Alpine, British Saanen or British Toggenburg, over 2 years.* [3 entries.]

I. (22 10s.)—MISS E. SKIDMORE, Ashley Leigh, Box, Wilts, white, Swiss, **Cerise** (K.R. 4915), born 7th July, 1916, bred by Mrs. Lubback, Bassets, Farnborough, Kent; s Farnham Samson (H.B. 2015), d Bianca Theresa.

CLASS 182. *Female Goat, Anglo-Nubian, and any other variety not included in Class 181, over two years.* [4 entries.]

I. (22 10s.)—MISS E. SKIDMORE, Ashley Leigh, Box, Wilts, brown, white markings, Anglo-Nubian-Swiss, **Heddon Amie**, born 29th March, 1920, bred by J. Morley, Box, Wilts; s Tremington of Trenance (H.B. 3286), d Ceresse (K.R. 4915), s d Farnham Samson.

II. (21 10s.)—MISS E. SKIDMORE, fawn, white markings, Anglo-Nubian-Swiss, **Heddon Speedwell** (H.B. 4147), born 10th March, 1920; s Brendon Friday (Tog. 349 H.B.), d Wigmore Clover **Q* (H.B. 2197), s d T. W. Topaz (H.B. 2040).

III. (15s.)—CAPTAIN T. DAVIES, Symonds Yat, Ross-on-Wye, fawn, white markings, Anglo-Nubian-Swiss, **Gilmyn Kate** (H.B. 4153), born 8th March, 1920; s †Oadby Captain (H.B. 2902), d Alundrae Caquata (H.B. 3392), s d Leazes Treasure (H.B. 2247).

R.—CAPTAIN T. DAVIES, brown and white, Anglo-Nubian-Swiss, **Zoyland Patty** (K.R. 6003), born 1st April, 1918, bred by W. C. Heaton, Hewelsfield, St. Briavels; s Zoyland Benson (H.B. 2873), d Druidstone Thistle (K.R. 2714), s d General MacDonald (A.N. 210).

CLASS 183.—*Goatling, any variety, over one year, but not exceeding two years.* [3 entries.]

I. (22 10s.)—MISS E. SKIDMORE, Ashley Leigh, Box, Wilts, white, Anglo-Nubian-Swiss, **Heddon Saintfoin** (H.B. 4791), born 4th March, 1921; s †Peter of Bashley (H.B. 4207), d Wigmore Clover **Q* (H.B. 2197), s d †Wigmore Topaz (H.B. 2040).

II. (21 10s.)—CAPTAIN T. DAVIES, Symonds Yat, Ross-on-Wye, chocolate, Anglo-Nubian-Swiss, **Keighly Heather** (H.B. 4657), born 3rd January, 1921, bred by W. C. Heaton, Hewelsfield, St. Briavels; s Zoyland Rupert, d Emanuel Nita, s d †Ballywater Hawk.

III. (15s.)—CAPTAIN T. DAVIES, black, Anglo-Nubian-Swiss, **Amwell Ceres** (H.B. 4846), born 22nd April, 1921, bred by Miss Chaplin, Crowborough; s Ch. †Proud, d Amwell Tassell, s d Ch. Broxbourne White Nuggett.

CLASS 184.—*Female Kid, any variety.* [5 entries.]

I. (22.)—CAPTAIN T. DAVIES, Symonds Yat, Ross-on-Wye, black and white, Anglo-Nubian-Swiss, **Cilmyn Kathleen** (H.B. 5037), born 9th July, 1921; s Clytha Leo, d Cilwyn Kate, s d †Oadby Captain.

II. (21 10s.)—MISS E. SKIDMORE, Ashley Leigh, Box, Wilts, white, Anglo-Nubian-Swiss, **Heddon Swift** (K.R. 9231), born 13th August, 1921; s †Peter of Bashley (H.B. 4207), d Heddon Skylark (K.R. 7542).

III. (15s.)—CAPTAIN T. DAVIES, fawn and grey, Anglo-Nubian-Swiss, **Cilmyn Butterfly** (H.B. 5169), born 1st February, 1922; s †Tremedda Sir Lancelot, d Emanuel Wars, s d Keighley Warrior.

R.—CAPTAIN T. DAVIES, black and white, Anglo-Nubian Swiss, **Cilmyn Merrie**, born 20th March, 1922; s †Tremedda Sir Lancelot, d Cilmyn Berrie, s d †Oadby Captain.

CLASS 185.—*Male Goat, any variety, over two years.* [1 entry.]

I. (22 10s.)—MISS E. SKIDMORE, Ashley Leigh, Box, Wilts, white, Anglo-Nubian-Swiss, †**Peter of Bashley** (H.B. 4207), born 19th March, 1920, bred by Miss E. Pope, Bashley lodge, New Milton, Hants; s †Edenstead Pluck (H.B. 3007), d Promise of Bashley Q*Q*Q* (H.B. 3075), s d †Proud (H.B. 2853).

CLASS 186.—*Male Goat, any variety, over one but not exceeding two years.* [2 entries.]

I. (22 10s.)—MISS E. SKIDMORE, Ashley Leigh, Box, Wilts, white, Anglo-Nubian-Swiss, **Heddon Soranus** (H.B. 4792), born 31st March, 1921; s †Peter of Bashley (H.B. 4207), d Megro (N.H. 3232), s d Le Cheval (H.B.T. 280).

II. (21 10s.)—J. NAGLE, Pamber Place, Charter Ley, Basingstoke, Anglo-Nubian, †**Pheydon Antonio** (A.N. 1386), born 14th May, 1921, bred by Miss K. Pelly, Theydon Place, Epping; s Theydon Angus (A.N. 1136), d Regius Aganippe Q* (A.N. 895), s d Wigmore Norman (A.N. 562).

CLASS 187. *Milking Competition for Goats, any variety.* [7 entries.]

I. (22 10s.)—MISS E. SKIDMORE, Ashley Leigh, Box, Wilts, fawn, white markings, Anglo-Nubian-Swiss, **Heddon Speedwell** (H.B. 4147), born 10th March, 1920; s Brendon Friday (Tog. 349 H.B.), d Wigmore Clover **Q* (H.B. 2197), s d T. W. Topaz (H.B. 2040). Last kidded February 20th, 1922.

II. (21 10s.)—MISS E. SKIDMORE, brown, white markings, Anglo-Nubian-Swiss, **Heddon Amie**, born 28th March, 1920, bred by J. Morley, Box, Wilts; s Tremington of Trenance (H.B. 3286), d Ceres (K.R. 4915), s d Farnham Samson. Last kidded March 23rd, 1922.

III. (15s.)—MISS E. SKIDMORE, white, Swiss, **Ceris** (K.R. 4915), born 7th July, 1916, bred by Mrs. Lubbock, Bassets, Farnborough, Kent; s Farnham Samson (H.B. 2015), d Bianca Theresa. Last kidded March 3rd, 1922.

SPECIAL PRIZES.

For Animals entered in Classes 181 to 187:—

Challenge Certificate for the best Female Goat that has borne a kid.

I.—MISS E. SKIDMORE, Ashley Leigh, Box, Wilts, brown, white markings, Anglo-Nubian-Swiss, **Heddon Amie**, born 29th March, 1920, bred by J. Morley, Box, Wilts; s Tremgton of Trenance (H.B. 3286), d Cerese (K.R. 4915), s d Farnham Samson.

Challenge Certificate for the best Dual Purpose Goat.

I.—MISS E. SKIDMORE, Ashley Leigh, Box, Wilts, brown, white markings, Anglo-Nubian-Swiss, **Heddon Amie**, born 29th March, 1920, bred by J. Morley, Box, Wilts; s Tremgton of Trenance (H.B. 3286), d Cerese (K.R. 4915), s d Farnham Samson.

Challenge Certificate for the best Male Goat over one year.

I.—MISS E. SKIDMORE, Ashley Leigh, Box, Wilts, white, Anglo-Nubian-Swiss, **†Peter of Bashley** (H.B. 4207), born 19th March, 1920, bred by Miss E. Pope, Bashley Lodge, New Milton, Hants; s **†Edenstead Pluck** (H.B. 3007), d Promise of Bashley Q*Q*Q* (H.B. 3075), s d **†Proud** (H.B. 2853).

(The Prizes awarded at this Show were also included in the awards for the British Goat Society's "Breeder's Perpetual Challenge Cup.")

PIGS.

BERKSHIRE.

(£4 towards the Prizes in Classes 188 to 191 were given by the British Berkshire Society).

CLASS 188.—*Berkshire Boar, exceeding 18 months old.* [6 entries.]

I. (27.)—H. R. BEETON, Hammonds, Checkendon, Reading, **Hammonds Carry On**, born 27th March, 1920; s Carry On, d Compton Giantess.

II. (23.)—J. ISMAY, Iwerne Minster House, Blandford, **Iwerne Gay Lad** (23970), born 6th May, 1920; s Manor Pioneer (20004), d Iwerne Freda (20750), s d Hurry On (19635).

CLASS 189.—*Berkshire Boar, not exceeding 18 months old.* [4 entries.]

I. (25.)—J. ISMAY, Iwerne Minster, House, Blandford, **What's Wanted** (25785), born 17th July, 1921; s Victory Loan (21379), d Manor Marmza (24321), s d Manor Buckmaster (22554).

II. (22.)—J. NAGLE, Pamber Place, Charter Ley, Basingstoke, **Pamber Gay Crusader** (25740), born 3rd July, 1921; s Pamber President (22702), d Pamber Plunkette (22700), s d Minley King (18364).

III. (21.)—J. NAGLE, **Pamber Polymagnus** (25728), born 1st June, 1921; s Hurry Onward (22033), d Basildon Wren (24537), s d Murrell Mike (21239).

CHALLENGE CUP (*value £10 10s.*)

GIVEN THROUGH THE BRITISH BERKSHIRE SOCIETY.

To be won twice in succession, or three times in all before becoming the property of the Exhibitor—

For the best Boar in Class 188 or 189.

I.—H. R. BEETON, Hammonds, Checkendon, Reading, **Hammonds Carry On**, born 27th March, 1920; s Carry On, d Compton Giantess.

R.—J. ISMAY, Iwerne Minster House, Blandford, **What's Wanted** (25785), born 17th July, 1921; s Victory Loan (21379), d Manor Marnza (24321), s d Manor Buckmaster (22554).

CLASS 190.—*Berkshire Breeding Sow, exceeding 18 months old.* [4 entries.]

I. (27.)—J. NAGLE, Pamber Place, Charter Ley, Basingstoke, **Pamber Prolife** (22705), born 10th April, 1920; s Minley King (18364), d Compton Guest (20188), s d Manor Baronet (18978).

II. (23.) J. NAGLE, **Pamber Propagation** (22706), born 10th April, 1920; s Minley King (18364), d Compton Guest (20188), s d Manor Baronet (18978).

CLASS 191.—*Pair of Berkshire Breeding Sows, not exceeding 18 months old.* [3 entries.]

I. (25.)—J. NAGLE, Pamber Place, Charter Ley, Basingstoke, **Pamber Golden Melody** (25721), and **Pamber Golden Music** (25722), born 2nd February; s Pamber Sarchedon (22686), d Murrell Agnes (21157), s d Minley King (18364).

II. (22.)—J. ISMAY, Iwerne Minster, Blandford, **Iwerne Good Points** (25786) and **Iwerne Right Sort** (25787), born 17th July; s Victory Loan (21379), d Manor Marnza (24321), s d Manor Buckmaster (22554).

CHALLENGE CUP (*value £10 10s.*)

GIVEN THROUGH THE BRITISH BERKSHIRE SOCIETY.

To be won twice in succession or three times in all before becoming the property of the Exhibitor.

Best Sow in Class 190 or 191.

I.—J. NAGLE, Pamber Place, Charter Ley, Basingstoke, **Pamber Prolife** (22705), born 10th April, 1920; s Minley King (18364), d Compton Guest (20188), s d Manor Baronet (18978).

R.—J. NAGLE, **Pamber Propagation** (22706), born 10th April, 1920; s Minley King (18364), d Compton Guest (20188), s d Manor Baronet (18978).

SPECIAL PRIZE.

GIVEN BY THE BRITISH BERKSHIRE SOCIETY.

Best Boar or Sow in the Berkshire Classes, entered in, or eligible for the Herd Book, whose Sire and Dam, together with the name of its Breeder, were entered in the Catalogue.

I. (25).—J. NAGLE, Pamber Place, Charter Ley, Basingstoke, **Pamber Prolific** (22705), born 10th April, 1920; s Minley King (18364), d Compton Guest (20188), s d Manor Baronet (18978).

R.—J. NAGLE, **Pamber Propagation** (22706), born 10th April, 1920; s Minley King (18364), d Compton Guest (20188), s d Manor Baronet (18978).

A Silver Medal was awarded to the Breeder of the prize-winning Animal.

LARGE BLACK.

(£40 towards the prizes in the Large Black Classes and the Champion Prizes were given by the Large Black Pig Society).

CLASS 192. *Large Black Boar, farrowed before May 1st, 1921.*
[14 entries.]

I. (27).—T. F. HOOLEY, Dry Drayton, near Cambridge, **Tiptree Conserve** (16547), born 30th March, 1920, bred by S. Wilkin, Tiptree, Essex: s Bassingbourne Tiptree (7893), d Tiptree 164th (27832), s d Tiptree War Bread.

II. (25).—T. WARNE, J.P., Trevisquite Manor, St. Mabyn S.O., Cornwall, **Trevisquite Sale Day** (13049), born 20th February, 1920; s Trevisquite King (10203), d Trevisquite Levelsides 7th (19246), s d Boss of the Valley.

III. (22).—J. H. GLOVER, Cornwood, South Devon, **Railton Hero** (13241), born 8th May, 1919, bred by A. J. J. Nicholls, Cornwall; s Treveglos Marksman (7761), d Beauty of the Valley 16th (17666).

R. L. HARRISON & CO., LTD., Pedigree Live Stock Farms, Coolham, Horsham, **Valley Up-to-Date** (9113), born 22nd March, 1918, bred by J. C. Olver, Woodlands Valley, Ladoek, Cornwall; s Treveglos Marksman (7761), d Queen of the Valley 14th (19640), s d Valley Model (4971).

H.C.—T. BURROWS, Brook Farm, Uffculme, Devon, **Awton Major** (20713), born 2nd January, 1921, bred by — Beaton, Shepleigh Court, Blackawton; s Cornwood King John (8271), d Drayton Destitute 2nd (34318), s d Sudborne Trigger (9353).

CLASS 193.—*Large Black Boar, not exceeding 12 months old on May 1, 1922.* [12 entries.]

I. (27).—J. H. GLOVER, Cornwood, South Devon, **Cornwood Someday**, (20623), born 3rd July, 1921; s Cornwood Marvel (15831), d Tinten Nancy (37440), s d Cornwood King John (8271).

II. (25).—W. L. HOSKING & SONS, Fentongollan, Probus, Cornwall, **Fentongollan Result 2nd**, born 25th August, 1921; s Fentongollan Tobias (8583), d Fentongollan Smiling Lady (26374), s d Treveglos Leader 3rd (6015).

III. (22).—T. F. HOOLEY, Dry Drayton, near Cambridge, **Cornwood Doonard** (20621), born 3rd July, 1921, bred by J. H. Glover, Cornwood, Devon; s Cornwood Marvel (15831), d Tinten Nancy (37440).

R.—H. E. BASTARD, Tinten Manor, St. Tudy, Cornwall, **Tinten Challenger 2nd** (20821), born 2nd May, 1921; s Fentongollan Lad (10567), d Tinten Black Bess 30th (31880), s d Cornwood King John (8271).

V.H.C.—C. C. PYKE, O.B.E., Capel Leyse, Holmwood, Surrey, **Holmwood Koh-i-noor** (20967), born 28th May, 1921; s Martham Success 2nd (15275), d Testerton Emerald (52192), s d Sudbourne Chance It (7985).

H.C.—A. D. LAURIE, Homefield, Sevenoaks, Kent, **Maxwelltoun Laddie 3rd** (21637), born 31st August, 1921; s Maxwelltoun Black Prince (13483), d Maxwelltoun Lass 18th (45554), s d Maxwelltoun Black Prince 4th (11957).

C.—J. WARNE, Tregonhayne, Tregoney, Grampound Road, **Trevelglos Omega** (21809), born 18th July, 1921; s Trevelglos Chum 2nd (14787), d Fentongollan Topsy (16880), s d Cornwood Spark (5181).

CLASS 194.—Large Black Boar, farrowed in 1922. [19 entries.]

I. (27).—J. H. GLOVER, Cornwood, South Devon, **Cornwood Philip** (21697), born 2nd January; s Witham Tiptree 1st (1103), d Cornwood Lass 55th (25730), s d Alford Victor 2nd (6841).

II. (23).—T. F. HOOLEY, Dry Drayton, near Cambridge, born 4th January; s Fentongollan Result (9585), d Drayton Lonesome (47470).

III. (22).—H. E. BASTARD, Tinten Manor, St. Tudy, Cornwall, **Tinten Sultan 1st** (21711), born 4th January; s Witham Tiptree 1st (11103), d Tinten Black Bess 21st (17238), s d Boss of the Valley (3855).

R.—W. G. BRENT, Warrens Park, Coads Green, Launceston, Cornwall, **Warren's Park Marksman**, born 21st January; s Trevisquite Joseph, d Tinten Maria 2nd, s d Cornwood King John.

V.H.C.—A. D. LAURIE, Homefield, Sevenoaks, Kent, **Maxwelltoun Black Prince 32nd** (21639), born 3rd January; s Tinten King John (12489), d Maxwelltoun Souvenir 9th (43740).

H.C.—L. HARRISON & Co., LTD., Pedigree Live Stock Farms, Coolham, Horsham, born 1st January; s Valley Up-to-Date (9113), d Drayton Beldame (23306), s d Tartar King (6569).

C.—J. WARNE, Tregonhayne, Tregoney, **Trevelglos Pioneer 1st** (21815), born 2nd January; s Moorland Pride (7751), d Trevisquite Levelsides 13th (33066), s d Rostronguet Pioneer (6997).

CHAMPION PRIZE.

Best Animal in Classes 192 to 194.

I. (25).—J. H. GLOVER, Cornwood, South Devon, **Cornwood Someday** (20623), born 3rd July, 1921; s Cornwood Marvel (15831), d Tinten Nancy (37440), s d Cornwood King John (8271).

R.—T. F. HOOLEY, Dry Drayton, near Cambridge, **Tiptree Conserve** (16547), born 30th March, 1920, bred by S. Wilkin, Tiptree, Essex; s Bassingbourne Tiptree (7893), d Tiptree 164th (27832), s d Tiptree War Bread.

CLASS 195.—Large Black Breeding Sow, farrowed before May 1, 1921.
[14 entries.]

I. (#7).—W. J. WARREN, Deacons, Staplegrove, Taunton, **Kibbear Lady Allies** (17246), born 6th May, 1916; s Drayton Disappointment (4573), d Kibbear Lady Annie (14050), s d Cornwood Magistrate (4271).

II. (#5).—J. WARNE, Tregonhayne, Tregony, Grampound Road, **Bonyalia Matchless 21st** (30350), born 15th April, 1919, bred by — Lucas, Bonyalia, St. Germans; s Primley Henry (5513), d Bonyalia Matchless 3rd (16080), s d Treveglos Thunderbolt 2nd (3427).

III. (#2).—T. BURROWS, Brook Farm, Uffculme, **Brook Lass 32nd** (40442), born 5th February, 1920; s Treveglos Brook King (7979), d Brook Lass 27th (30164), s d Vahan Jim (7017).

E.—W. L. HOSKING & SONS, Fentongollan, Probus, Cornwall, **Fentongollan Smiling Lady** (26374), born 13th September, 1918; s Treveglos Leader 3rd (6015), d Treveglos Smiling Lady 3rd (20850), s d Alfold Smiling Lad (4411).

V.H.C.—T. F. HOOLEY, Dry Drayton, near Cambridge, **Drayton Lonesome** (47470), born 30th March, 1920; s Wintringham Premier (11455), d Cornwood Lucky Lass (18216).

H.C.—L. HARRISON & CO., LTD., Pedigree Live Stock Farms, Coolham, Horsham, **Docking Sadie** (27108), born 2nd August, 1918, bred by H. Groom, Docking, Norfolk; s Sudbourne Laird (6505), d Sudbourne Sadie 5th (17620), s d Drayton Mars (5289).

G.—W. WILLS, Marlwood, Thornbury, Glos., **Lustleigh Longlady 12th** (77972), born January 10, 1921; s Cornwood Longsides (17441), d Gordano Longlady 1st (33386), s d Valley Togo (4675).

CLASS 196.—Large Black Breeding Sow, not exceeding 12 months old on May 1, 1922. [14 entries.]

I. (#7).—H. E. BASTARD, Tinten Manor, St. Tudy, Cornwall, **Tinten Princess 4th** (73608), born 5th May, 1921; s Fentongollan Lad (10567), d Tinten Black Bess 34th (38340), s d Cornwood King John (8271).

II. (#5).—T. F. HOOLEY, Dry Drayton, near Cambridge, **Drayton Winsome Lass 1st**, born 18th June, 1921; s Drayton Democrat (11613), d Testerton Eventide (52148).

III. (#2).—J. H. GLOVER, Cornwood, South Devon, **Cornwood Lass 62nd** (72448), born 3rd July, 1921; s Cornwood Marvel (15831), d Tinten Nancy (37440), s d Cornwood King John (8271).

R.—A. D. LAURIE, Homefield, Sevenoaks, **Maxwelltoun Lassie, 35th** (73494), born 16th May, 1921; s Tinten King John (12489), d Maxwelltoun Lassie 16th (44466).

V.H.C.—T. F. HOOLEY, **Drayton Winsome Lass 2nd**, born 18th June, 1921; s Drayton Democrat (11613), d Testerton Eventide (52148).

H.C.—J. WARNE, Tregonhayne, Tregonny, Grampound Road, Cornwall, **Treveglos May Queen** (78822), born 20th May, 1921; s Treveglos Chum 2nd (14787), d Treveglos Gem (32630), s d Valley Togo (4675).

lxx *Prizes awarded to Large Black and Large White Pigs.*

C.—H.R.H. THE PRINCE OF WALES, K.G., Marsh Fruit and Poultry Farm, Landulph, Hatt, Cornwall, **Marsh Marcia** (78742), born 26th June, 1921, bred by O. L. du Plessis (Manager), Marsh Fruit and Poultry Farm, Landulph, Hatt, Cornwall; s Whiteford Turk (11433), d Whiteford Vanity (32990), s d Valley Royal Victor (7563).

CLASS 197.—*Pair of Large Black Breeding Sows, farrowed in 1922*
[16 entries.]

I. (27.)—A. D. LAURIE, Homefield, Sevenoaks, Kent, **Maxwelltoun Lassie** (78130), and **41st** (78132), born 12th January; s Tinten King John (12489), d Maxwelltoun Lassie (144466).

II. (23.)—W. G. BRENT, Warren's Park, Coad's Green, Launceston, **Warren's Park Daphne 1st** and **2nd**, born 21st January; s Trevisquite Joseph, d Tinten Maria 2nd, s d Cornwood King John.

III. (22.)—T. F. HOOLEY, Dry Drayton, near Cambridge, born 4th January; s Fentongollan Result (9585), d Drayton Lonesome (47470).

R.—J. H. GLOVER, Cornwood, South Devon, **Cornwood Lass 64th** and **Cornwood Lass 65th**, born 4th January; s Witham Tiptree 1st (11103), d Tinten Nancy (37440), s d Cornwood King John (8271).

V.H.C.—J. WARNE, Tregonhayne, Tregony, Grampound Road, **Treveglos Levelsides 5th** and **6th** (78824) and (78826), born 2nd January; s Moorland Pride (7751), d Trevisquite Levelsides 13th (33066), s d Rostrogue Pioneer (6997).

H.C.—H. E. BASTARD, Tinten Manor, St. Tudy, Cornwall, **Tinten Bess 42nd** and **43rd**, born 4th January; s Witham Tiptree 1st (11103), d Tinten Black Bess 21st (17238), s d Boss of the Valley (3855).

C.—T. WARNE, J.P., Trevisquite Manor, St. Mabyn, S.O., Cornwall, born 3rd January; s Hendra Trevisquite (14333), d Trevisquite Levelsides 7th (19246), s d Boss of the Valley.

CHAMPION PRIZE.

Best Animal in Classes 195 to 197.

I. (25.)—W. J. WARREN, Deacons, Staplegrove, Taunton, **Kibbear Lady Allies** (17246), born 6th May, 1916; s Drayton Disappointment (4573), d Kibbear Lady Annie (14050), s d Cornwood Magistrate (4271).

R.—H. E. BASTARD, Tinten Manor, St. Tudy, Cornwall, **Tinten Princess 4th** (73608), born 5th May, 1921; s Fentongollan Lad (10567), d Tinten Black Bess 34th (38340), s d Cornwood King John (8271).

LARGE WHITE.

(£10 towards the prizes in Classes 198 to 201 and the Champion Prizes were given by the National Pig Breeders' Association.)

CLASS 198.—*Large White Boar, farrowed in 1919, 1920 or 1921.*
[6 entries.]

I. (27.)—THE EARL OF ELLESMERE, Worsley Hall, near Manchester, **Stetchworth Turk 16th** (30515), born 1st January, 1920; s Stetchworth Tuck 7th (21351), d Worsley Lady 11th (39622), s d Worsley Emperor 38th (15479).

II. (23.)—T. H. TILLEY, Manor Farm, Biddisham, Axbridge, Somerset, **Kingmaker of Mendip** (Vol. 38), born July, 1920, bred by A. W. White, Hillegom, Spalding, Linc.; s Kingmaker (24151), d Spalding Catalina (55122), s d Spalding Wonder (20227).

III. (22.)—L. HARRISON & CO., LTD., Pedigree Live Stock Farms, Coolham, Horsham, **Shipley King** (30407), born 10th January, 1920; s Turk of Tendring (22849), d Tockwith Princess 2nd (55520), s d Bourne Bandmaster (18397).

R.—W. WHITE & SONS, Pool Farm, Taunton, Somerset, **Caldmore Gay** (Vol. 39), born 4th July, 1921, bred by R. P. Haynes, Delves Green, Wednesbury, Staffs.; s Worsley Gay 91st (27627), d Bottesford Buttercup 16th (52656), s d Worsley Turk 59th (22971).

CLASS 199. *Pair of Large White Boars, farrowed in 1922.* [6 entries.]

I. (25.)—THE EARL OF ELLESMERE, Worsley Hall, near Manchester, born 2nd January; s Stetchworth Kitchener 3rd (24599), d Stetchworth Empress 21st (61358), s d Stetchworth Emperor 2nd (20241).

II. (22.)—L. HARRISON & CO., LTD., Pedigree Live Stock Farms, Coolham, Horsham, born 2nd January; s Chester Sam (26241), d Bottesford Buttercup 15th (52654), s d Worsley Turk 95th (22971).

III. (21.) LIEUT.-COL. SIR C. MILES, BART., Home Farm, Walton-in-Gordano, Clevedon, **Gordano Turk** and **Gordano Turk 2nd**, born 1st January; s Ramsay Turk 14th (30297), d Delves Dewdrop (66350), s d Lion Heart of Caldmore (26929).

R. W. WHITE & SONS, Pool Farm, Taunton, Somerset, born 2nd January; s Taunton Emperor (Vol. 38), d Taunton Amy 5th (Vol. 38), s d Histon Snowman (24047).

CHAMPION PRIZE.

A Gold Medal, or £5, for the best Boar in Class 198 or 199.

I.—THE EARL OF ELLESMERE, Worsley Hall, near Manchester, **Stetchworth Turk 16th** (30515), born 1st January, 1920; s Stetchworth Tuck 7th (21351), d Worsley Lady 11th (39622), s d Worsley Emperor 38th (15479).

R.—T. H. TILLEY, Manor Farm, Biddisham, Axbridge, Somerset, **Kingmaker of Mendip** (Vol. 38), born July, 1920, bred by A. W. White, Hillegom, Spalding, Linc.; s Kingmaker (24151), d Spalding Catalina (55122), s d Spalding Wonder (20227).

CLASS 200. *Large White Breeding Sow, farrowed before 1922.*
[6 entries.]

I. (27.)—L. HARRISON & CO., LTD., Pedigree Live Stock Farms, Coolham, Horsham, **Bottesford Buttercup 13th** (52650), born 1st February, 1918, bred by D. R. Daybell, Bottesford, Notts.; s Worsley Tuck 95th (22971), d Bottesford Buttercup 4th (40638), s d Mollington Jay of Bottesford (10965).

II. (23.)—W. WHITE & SONS, Pool Farm, Taunton, Somerset, **Taunton Amy**, born 2nd July, 1920; s Histon Snowman (24047), d Histon Amy 6th (59812), s d Histon Lion Heart (22481).

lxxii *Prizes awarded to Large White and Middle White Pigs.*

III. (22.)—W. WHITE & SONS, Taunton Countess 5th, born 1st July, 1920 ; s Taunton Araby 3rd (27325), d Copped Hall Cassia (58690), s d Walton Emperor (21459).

R.—THE EARL OF ELLESMERE, Worsley Hall, near Manchester. **Queen of Stetchworth 4th** (61016), born 1st January, 1918, bred by E. Thomlinson, Tockwith, near York ; s Bourne Bandmaster (18397), d Fragrance of West Derby (46994), s d Turk of Worsley 10th (17775).

H.C.—T. H. TILLEY, Manor Farm, Biddisham, Axbridge, Somerset, **Mendip Queen** (Vol. 38), born 21st January, 1921 ; s Banner of Mendip (25883), d Mendip Countess 1st (50066), s d Grantham Corporal (20013).

CLASS 201.—*Pair of Large White Breeding Sows, farrowed in 1922.*
[8 entries.]

I. (25.)—W. WHITE & SONS, Pool Farm, Taunton, Somerset, born 2nd January ; s Taunton Emperor (Vol. 38), d Taunton Amy 5th (Vol. 38), s d Histon Snowman (24047).

II. (22.)—THE EARL OF ELLESMERE, Worsley Hall, near Manchester, born 1st January ; s Stetchworth Jay 8th (27267), d Lass of Stetchworth (60222), s d Spalding Vulcan (17703).

III. (21.)—LIEUT.-COL. SIR C. MILES, BART., Home Farm, Walton-in-Gordano, Clevedon, born 1st January ; s Ramsay Turk 14th (30297). d Dowager of Gordano (69322), s d Worsley Turk 107th (24999).

R.—L. HARRISON & Co., Ltd., Pedigree Live Stock Farms, Coolham, Horsham, born 2nd January ; s Chester Sam (26241), d Bushes Pride 5th (65564), s d Bottesford Emperor 10th (19743).

CHAMPION PRIZE.

A Gold Medal, or £5, for the best Sow in Class 200 or 201.

I.—L. HARRISON & Co., LTD., Pedigree Live Stock Farms, Coolham, Horsham, **Bottesford Buttercup 13th** (52650), born 1st February, 1918, bred by D. R. Daybel, Bottesford, Notts. ; s Worsley Turk 95th (22971), d Bottesford Buttercup 4th (40638), s d Mollington Jay of Bottesford (10965).

R.—W. WHITE & SONS, Pool Farm, Taunton, Somerset, **Taunton Amy**, born 2nd July, 1920 ; s Histon Snowman (24047), d Histon Amy 6th (59812), s d Histon Lion Heart (22481).

MIDDLE WHITE.

(£10 towards the prizes in Classes 202 to 205 and the Champion Prizes were given by the National Pig Breeders' Association).

CLASS 202.—*Middle White Boar, farrowed in 1919, 1920 or 1921.*
[7 entries.]

I. (27.)—L. HARRISON & Co., LTD., Pedigree Live Stock Farms, Coolham, Horsham, **Shipley Samson**, born 8th January, 1920 ; s Pendley King (32179), d Histon Royal Lady (63104), s d Bookham of Harthay (19369).

II. (23.)—H. R. BEETON, Hammonds, Checkendon, Reading, **Hammonds Hivite**, born 13th May, 1920 ; s Carry On, d Hammonds Hobbledehoy, s d Iwerne John.

III. (22.)—T. A. STEPHENS, Hookstile House, South Godstone, Surrey, **Baron of Hookstile**, born 27th October, 1919, bred by Dr. M. J. Rowlands, Nash Farm, Keston, Kent ; s Albany Shrewsbury (25129), d Histon Lady 6th (63060), s d Shrewsbury (19511).

R.—MRS. HAYES SADDLER, Norsbury, Sutton Scotney, Hants, **Norsbury Woodman** (Vol. 38), born 15th February, 1921 ; s Robin of Norsbury (32301), d Histon Woodland (73464), s d Histon Shrewsbury 2nd.

C.—THE MISSES BAILEY, Tudor House, Romsley, Bridgnorth, **Shatterford Sahib**, born 22nd July, 1921 ; s Castlecroft Athlete (Vol. 38), d Joan of Shatterford (73692), s d Scotty of Prestwood (25533). —W. T. B. CARTRIDGE, Sidbury, Worcester, **Sidbury Bold Baron** (Vol. 38), born 15th July, 1921 ; s Pendley Swell (32183), d Violet of Beenham (57284), s d Hammonds Moonbeam (21691).

CLASS 203.—*Pair of Middle White Boars, farrowed in 1922.* [7 entries.]

I. (25.)—L. HARRISON & CO., LTD., Pedigree Live Stock Farms, Coolham, Horsham, born 2nd January ; s Holywell Milponiam (Vol. 38), d Shipley Lady 1st (75240), s d Histon Halo (25339).

II. (22.)—T. KEMP, Cogshall Hall, Northwich, Cheshire, **Cogshall Anthony 1st and 2nd**, born 3rd January ; s Sidbury Anthony (32413), d Hazel Lady 15th, s d Beecherft Bill (27821).

III. (21.)—MRS. HAYES SADDLER, Norsbury, Sutton Scotney, Hants, born 4th January ; s Salopian of Prestwood (32315), d Histon Violet 2nd (73446), s d Histon Halo.

R.—THE MISSES BAILEY, Tudor House, Romsley, Bridgnorth, **Shatterford Sidney and Shatterford Sam**, born 8th January ; s David 1st of Shatterford (Vol. 38), d Shatterford Marie (Vol. 38), s d Prestwood Acrobat 4th (28225).

CHAMPION PRIZE.

A Gold Medal, or £5, for the best Boar in Class 202 or 203.

I.—L. HARRISON & CO., LTD., Pedigree Live Stock Farms, Coolham, Horsham, **Shipley Samson**, born 8th January, 1920 ; s Pendley King (32179), d Histon Royal Lady (63104), s d Bookham of Harthay (19369).

R.—H. R. BEETON, Hammonds, Checkendon, Reading, **Hammonds Hivite**, born 13th May, 1920 ; s Carry On, d Hammonds Hobbledehoy, s d Iwerne John.

CLASS 204.—*Middle White Breeding Sow, farrowed before 1922.* [10 entries.]

I. (27.)—S. F. EDGE, Gallops Homestead, Ditchling, Sussex, **Albany Sunflower Queen 1st**, born 11th January, 1921 ; s Shrewsbury of Albany (21777), d Albany Sunflower (51272), s d Wharfedale Surprise (20629).

II. (23.)—**MRS. HAYES SADLER**, Norsbury, Sutton Scotney, Hants, **Norsbury Venus** (63290), born 15th May, 1919; s Durbar of Histon (21679), d Vera of Norsbury (63696).

III. (22.)—**W. T. B. CARTRIDGE**, Sidbury, Worcester, **Successful of Rickerscote** (75536), born 3rd January, 1920, bred by J. L. James, Beechcroft, Stafford; s Prestwood Acrobat 1st (23197), d Wharfedale Successful (63816), s d Wharfedale Corporal (19539).

R.—**L. HARRISON & Co., LTD.**, Pedigree Live Stock Farms, (oolham, Horsham, **Shipley Lady Gracious 1st** (75288), born 26th May, 1919; s Histon Hals (25339), d Histon Lady Gracious (63062), s d Shrewsbury (19511).

C.—**H. R. BEETON**, Hammonds, Checkendon, Reading, born 21st January, 1921; s Hammonds Perfection's Pride, d Hagar. —**T. KEMP**, Cogshall Hall, Northwich, Cheshire, **Pattie of Wharfdale** (862), born 9th October, 1919, bred by — Paget, Wharfdale, Yorks; s Dividend of Wharfedale (20511), d Holywell Harthay Rosarine 2nd (45688), s d Prestwood David 3rd (18105). —**T. A. STEPHENS**, Hookstile House, South Godstone, Surrey, **Hookstile Joyce 3rd**, born 3rd March, 1921; s Baron of Hookstile (31251), d Peene Joyce 1st (74488), s d Boaz of Peene (25169). —**T. A. STEPHENS**, **Hookstile Joyce 2nd**, born 3rd March, 1921; s Baron of Hookstile (31251), d Peene Joyce 1st (74488), s d Boaz of Peene (25169).

CLASS 205.—Pair of Middle White Breeding Sows, farrowed in 1922
[6 entries.]

I. (25.)—**L. HARRISON & Co., LTD.**, Pedigree Live Stock Farms, (oolham, Horsham, born 2nd January; s Holywell Milpönia (Vol. 38), d Shipley Lady 1st (75240), s d Histon Halo (25339).

II. (22.)—**MRS. HAYES SADLER**, Norsbury, Sutton Scotney, Hants, born 18th January; s Histon Ronuk (31983), d Norsbury Venus (63290), s d Durbar of Histon (21679).

III. (21.)—**T. KEMP**, Cogshall Hall, Northwich, Cheshire, **Cogshall Rosebud 1st and 2nd**, born 17th January; s Wharfedale Super Tax (32603), d Caldmore Rosebud 6th (2560), s d Prestwood Acrobat 4th (28225).

R.—**W. T. B. CARTRIDGE**, Sidbury, Worcester, born 1st January; s Arcadian Emperor 2nd (31173), d Successful of Rickerscote (75536), s d Prestwood Acrobat 1st (23197).

CHAMPION PRIZE.

A Gold Medal, or £5, for the best Sow in Class 204 or 205.

I.—**S. F. EDGE**, Gallops Homestead, Ditchling, Sussex, **Albany Sunflower Queen 1st**, born 11th January, 1921; s Shrewsbury of Albany (21777), d Albany Sunflower (51272), s d Wharfedale Surprise (20629).

R.—**MRS. HAYES SADLER**, Norsbury, Sutton Scotney, Hants, **Norsbury Venus** (63290), born 15th May, 1919; s Durbar of Histon (21679), d Vera of Norsbury (63696).

LONG WHITE LOP-EARED.

(£20 towards the prizes in Classes 206 to 210 were given by the Long White Lop-Eared Pig Society.)

CLASS 206.—*Long White Lop-Eared Boar, farrowed on or before October 1st, 1921.* [5 entries.]

I. (27.)—W. H. NEAL, Yealmpstone Farm, Plympton, **Master Piece**, born July, 1921; s General (2), d Dainty (3).

II. (23.)—H. J. KINGWELL, Bow Grange, Totnes, Devon, **Torland Jumbo** (54), born 3rd March, 1921, bred by — White, Tavistock, Devon; s Roborough Jumbo (20), d Netherton Queen, s d Woodleys Jumbo.

III. (22.)—A. D. FENTON, Maristow, Roborough, South Devon, **Netherton Sultan** (52), born 2nd April, 1921, bred by S. Ward, Netherton, Yelverton; s Roborough Jumbo (20), d Netherton Suzanne (43).

R.—H. TOPE, Jun., Belsford, Harberton, Totnes, **Netherton Gay Boy**, born April, 1920, bred by S. M. Ward, Netherton House, Yelverton; d Netherton Susan.

CLASS 207.—*Long White Lop-Eared Boar, farrowed since October 1, 1921.* [3 entries.]

I. (27.) S. M. WARD, Netherton House, Yelverton, South Devon, **Netherton Defender**, born 24th October, 1921; s Quither General (2), d Netherton Suzanne (43).

II. (23.)—W. H. NEAL, Yealmpstone Farm, Plympton, **Yealmpstone Happy Boy**, born 13th March, 1922; s Netherton Jumbo, d Tipton Madam.

III. (22.) H. TOPE, Jun., Belsford, Harberton, Totnes, **Harberton Autocrat**, born 1st February, 1922; s Netherton Gay Boy, d Harberton Hazel.

CLASS 208.—*Long White Lop-Eared Sow, any age, in-farrow or with farrow not exceeding eight weeks old on June 1, 1922.* [7 entries.]

I. (27.) A. H. WARD, Cumerew, Yelverton, South Devon, **Cumerew Suzette** (59), born March, 1920, bred by S. M. Ward, Netherton, Buckland, Yelverton, South Devon; s Netherton Suzanne, s d Tippeton Susan.

II. (23.) W. J. SQUIRE & SONS, Stole Farm, Ermington, **Earne Beauty** (341), born 20th July, 1920.

III. (22.)—M. H. MOORE, The Hellyers, Ipplepen, Newton Abbot, **Ipplepen Pride** (253), born 15th November, 1919, bred by W. Adams, Waye Barton, Ipplepen.

V.H.C.—W. H. NEAL, Yealmpstone Farm, Plympton, **Yealmpstone Queen** (71), born 1918.

H.C.—W. DOWN, Colwill Farm, Crown Hill, Plymouth, **Colwill Queen**, about four years old.

CLASS 209.—*Long White Lop-Eared Sow, farrowed since March 1, 1921. [8 entries.]*

I. (£7).—H. J. KINGWELL, Bow Grange, Totnes, Devon, **Ipplepen White Heather** (255), born 28th July, 1921, bred by M. Moore, Ipplepen, Devon; s Yett Masterman, d Ipplepen Pride (253).

II. (£3).—M. H. MOORE, The Hellyers, Ipplepen, Newton Abbot, **Lilly of the Valley** (263), born 31st July, 1921; s Yeatt Masterman, d Ipplepen Pride (253).

III. (£2).—H. J. KINGWELL, **Ipplepen Primula** (261), born 28th July, 1921, bred by M. Moore, Ipplepen, Devon; s Yett Masterman, d Ipplepen Pride (253).

V.H.C.—H. TOPE, Jun., Belsford, Harberton, Totnes, **Harberton Attraction**, born 1st February, 1922; s Netherton Gay Boy, d Harberton Hazel.

H.C.—S. M. WARD, Netherton House, Yelverton, South Devon, **Netherton Sunflower** (151), born 2nd April, 1921; s Roborough Jumbo (20), d Netherton Suzanne (43).

CLASS 210.—*Pair of Long White Lop-Eared Sows, farrowed in 1922. [4 entries.]*

I. (£5).—W. H. NEAL, Yealmpstone Farm, Plympton, born 13th March; s Netherton Jumbo, d Tippeton Madam.

II. (£2).—H. TOPE, Jun., Belsford, Harberton, Totnes, **Harberton Alacrity** and **Harberton Adventuress**, born 1st February; s Netherton Gay Boy, d Harberton Hazel.

III. (£1).—MAJOR E. G. WELDON, Tracey, Honiton, Devon, born 22nd February; s Netherton Surprise (46), d Tracey Witch (325).

V.H.C.—M. H. MOORE, The Hellyers, Ipplepen, Newton Abbot, **Ipplepen Queen** and **Ipplepen Princess**, born 22nd January; s Torland Jumbo (54), d Ipplepen Pride.

SPECIAL PRIZES.

GIVEN BY COL. G. CRAVEN HOYLE AND THE PLYMOUTH LOCAL COMMITTEE.

For the three best Animals in Classes 206 to 210 that had not won a prize previous to June 1st, 1922, the property of a resident within 30 miles of Plymouth—

I. (Silver Cup, value £5 5s.).—A. H. WARD, Cumerew, Yelverton, South Devon, **Cumerew Suzette** (59), born March, 1920, bred by S. M. Ward, Netherton, Buckland, Yelverton, South Devon; s Netherton Suzanne, s d Tippeton Susan.

II. (£3).—W. J. SQUIRE & SONS, Stole Farm, Ermington, **Earne Beauty** (341), born 20th July, 1920.

III. (£2).—S. M. WARD, Netherton House, Yelverton, South Devon, **Netherton Defender**, born 24th October, 1921; s Quither General (2), d Netherton Suzanne (43).

R.—W. H. NEAL, Yealmpstone Farm, Plympton, **Master Piece**, born July, 1921; s General (2), d Dainty (3).

GLOUCESTERSHIRE OLD SPOTS.

(£20 towards the Prizes in Classes 211 to 214 were given by the Gloucestershire Old Spots Pig Society).

CLASS 211.—*Gloucestershire Old Spots Boar, farrowed in 1919, 1920 or 1921.* [11 entries.]

I. (27.)—J. DOUGLAS, Hanham Road, Kingswood, Bristol, **Woodstock Edwin** (3335), born 24th August, 1920; s Ithelle Hero (2078), d Woodstock Alice (5962), s d Shipway Prince (284).

II. (23.)—S. H. BADOCK, Holmwood, Westbury-on-Trym, Bristol, **Holmwood Dauntless** (4275), born 7th March, 1921; s Ashton Bloomer (1741), d Clevehill Beauty (11327), s d Sultan 4th of Hollywood Tower (461).

III. (22.)—MAJOR W. WARING, M.P., Portlemore Barton, Malborough, South Devon, **Portlemore Bunker**, born 15th March, 1921; s Ashton Bloomer (1741), d Dumbleton Miss 31st (9087), s d Woodstock Duke (1541).

R.—H. FRANCIS & SONS, Summerleaze Farm, East Knoyle, Salisbury, **Dorset Diver**, (4401), born 1st January, 1921; s Clapcote Bob (373), d Gribton Gilt (1227), s d Kitesnest Recruiter (221).

CLASS 212.—*Pair of Gloucestershire Old Spots Boars, farrowed in 1922.* [6 entries.]

I. (25.)—UNIVERSITY OF BRISTOL RESEARCH STATION, Long Ashton, Bristol, **Ashton Dandy** (4629) and **Ashton Dapper** (4627), born 3rd January; s Woodstock Edgar (3334), d Ashton Curranh (9989), s d Daglingworth Prince (1122).

II. (22.)—H. FRANCIS & SONS, Summerleaze Farm, East Knoyle, Salisbury, **Dorset Dictator** and **Dorset Indicator**, born 10th January; s Leaszow Jostler (3364), d Dorset Jannette (5499), s d Gislake Mayor (622).

III. (21.)—J. PUTNAM, Estate Office, Home Farm, Farringdon, near Exeter, **Haydon Indomitable** and **Haydon Indomitable 2nd**, born 1st January; s Clapcote Leopard (1862), d LorrIDGE Queen 7th (1340), s d Woodlands Julian (214).

R.—THE RIGHT HON. THE LORD MAYOR OF CARDIFF (Councillor G. H. TURNBULL), Lower House Farm, Llantwit Major, Glam., **Llantwit Loyal** and **Llantwit Prince**, born 12th February; s Netherton Beltane, d Downside Spot 1st (13196), s d Cleve Hill Captain (2048).

CLASS 213.—*Gloucestershire Old Spots Breeding Sow, farrowed before 1922.* [14 entries.]

I. (27.)—SIR J. ANDERSON, BART., Harrold Priory, Sharnbrook, Beds, **Sonderna Mascot** (12664), born 30th January, 1921; s Cleve Hill Togo (2940), d Ashton Crystal (7157), s d Daglingworth Prince (1122).

II. (23.)—C. H. G. HARRIS, Chaffeymoor, Bourton, Dorset, **Chaffeymoor Beauty** (13290), born 20th February, 1921; s Bagborough Charm 49th (2555), d Maiden Bradley Patchworth 5th, s d Breidablick Lohe.

III. (22.)—H. FRANCIS & SONS, Summerleaze Farm, East Knoyle, Salisbury, **Dorset Midget** (9909), born 14th May, 1920; s Dorset Beau (1663), d Dorset Bess 2nd (4742), s d Bagborough Charm (696).

lxxviii *Prizes awarded to Gloucestershire Old Spots Pigs.*

R.—J. DOUGLAS, Hanham Road, Kingswood, Bristol, **Woodstock Ester** (9131), born 6th March, 1920; s Woodstock Count (1122), d Amelia (5960), s d Shipway Prince (284).

H.C.—J. DOUGLAS, **Woodstock Alice** (5962), born 20th February, 1919; s Shipway Prince (284), d Yate Fern 2nd (1563), s d Kitesnest Recruit. (220)
—J. PUTNAM, Estate Office, Home Farm, Farringdon, near Exeter, **Ashton Cynthia** (7139), born 23rd February, 1920, bred by the University of Bristol, Long Ashton, Bristol; s Daglingworth Prince (1122), d Hobwell Dora (3087), s d Coleshill Monarch (464).

CLASS 214.—*Pair of Gloucestershire Old Spots Breeding Sows, farrowed in 1922. [4 entries.]*

I. (25.)—H. FRANCIS & SONS, Summerleaze Farm, East Knoyle, Salisbury, **Dorset Circe** and **Dorset Media**, born 28th January; s Dorset Diver (4401), d Dorset Fairy (9910), s d Dorset Beau (1663).

II. (22.)—SIR F. H. BATHURST, BART., Somborne Park, Stockbridge, Hants, born 5th March; s Ashley Archer (4293), d Somborne Anice (13839), s d Hodgescombe Hero (2016).

CHAMPION PRIZES.

GIVEN BY THE GLOUCESTERSHIRE OLD SPOTS PIG SOCIETY.

The Sir George Watson Challenge Cup, value £21, for the best Animal in Classes 211 to 214. (The Cup to be won three times by the same Exhibitor with different animals before becoming his own property).

I.—SIR J. ANDERSON, BART., Harrold Priory, Sharnbrook, Beds., **Sonderna Mascot** (12664), born 30th January, 1921; s Cleve Hill Togo (2940), d Ashton Crystal (7157), s d Daglingworth Prince (1122).

R.—C. H. G. HARRIS, Chattermoor, Bourton, Dorset, **Chaffeymoor Beauty** (13290), born 20th February, 1921; s Bagborough Charm 49th (2555), d Maiden Bradley Patchworth 5th, s d Breidablick Lohe.

The Deane-Drummond Cup, value £14 14s., for the best Boar in Classes 211 and 212. (To be won twice by the same Exhibitor with different animals before becoming his own property).

I.—J. DOUGLAS, Hanham Road, Kingswood, Bristol, **Woodstock Edwin** (3335), born 24th August, 1920; s Ithelle Hero (2078), d Woodstock Alice (5962), s d Shipway Prince (284).

R.—S. H. BADOCK, Holmwood, Westbury-on-Trym, Bristol, **Holmwood Dauntless** (4275), born 7th March, 1921; s Ashton Bloomer (1741), d Clevehill Beauty (11327), s d Sultan 4th of Hollywood Tower (461).

The Hiatt-Baker Cup for the best Sow in Classes 213 and 214. (To be won twice by the same Exhibitor with different animals before becoming his own property).

I.—SIR J. ANDERSON, BART., Harrold Priory, Sharnbrook, Beds., **Sonderna Mascot** (12664), born 30th January, 1921; s Cleve Hill Togo (2940), d Ashton Crystal (7157), s d Daglingworth Prince (1122).

R.—C. H. G. HARRIS, Chaffeymoor, Bourton, Dorset. **Chaffeymoor Beauty** (13290), born 20th February, 1921; s Bagborough Charm 49th (2555), d Maiden Bradley Patchworth 5th, s d Breidablick Lohe.

WESSEX SADDLEBACK.

(£30 towards the Prizes in Classes 215 to 220 and the Champion Prizes were given by the Wessex Saddleback Pig Society, and all pigs exhibited must be entered or eligible for entry in that Society's Herd Book.

CLASS 215.—*Wessex Saddleback Boar, farrowed in 1920.* [2 entries.]

I. (£6.) SIR W. G. WATSON, BART., Sulhamstead Park, near Reading. **Ashe Hero 2nd**, born 6th August, bred by T. L. Martin, Ashe Warren House, Overton, Hants; s Caer Augustus Snodgrass (228), d Norman Node (318), s d Norman Empress (45).

CLASS 216. *Wessex Saddleback Boar, farrowed in 1921.* [7 entries.]

I. (£6.)—MALDEN-OAKLEY PIG HERD COMPANY, LTD., Overton, Hants. **Norman Polham** (661), born 25th January, bred by W. G. Singer; s Norman Obelisk (300), d Norman Emperor (45).

II. (£3.)—W. M. MILLARD, Middlezoy House, Middlezoy, Bridgwater, **Somerset Earl** (635), born 3rd February; s Norman Owen (259), d Somerset Duchess (988).

III. (£2.)—S. BOURNE, Epperstone Manor, Nottingham. **Epperstone Archer** (1040), born 16th August; s Hasbridge Cedar (239), d Dauntsey Rose (669), s d Dauntsey Perfection (204).

R. RIGHT HON. SIR A. MOND, BART., Melchet Court, Romsey, Hants. **Melchet Stephen 1st** (690), born 8th March; Melchet Prince (155), d Pansy of Melchet (1297), s d Melchet William (3).

V.H.C.—G. R. SOUTHWELL, Holbury Farm, Lockerley, Romsey, **Norman Perfection** (660), born 25th January, 1921, bred by W. M. G. Singer, Norman Court, Salisbury; s Norman Obelisk (300), d Norman Empress (45).

CLASS 217.—*Wessex Saddleback Boar, farrowed in 1922.* [4 entries.]

I. (£5.)—A. HOPE, West Sidborough, Tiverton, **Sidborough Snout**, born 8th January; s Pearash Luther (332), d Caer Mrs. Micawber (565), s d Brighstone Rover (10).

II. (£2.)—G. R. SOUTHWELL, Holbury Farm, Lockerley, Romsey, **Holbury Lottery** (1141), born 9th January; s Norman Perfection (660), d Holbury Loo (996).

III. (#1.)—SIR W. G. WATSON, BART., Sulhamstead Park, near Reading, born 17th February ; s Kennett Uncle (542), d Somerley Foxglove (2148), s d Burcombe Monarch (136).

R.—MALDEN-OAKLEY PIG HERD CO., LTD., Overton, Hants, **Oakley Lancer**, born 25th January ; s Oakley Rupert (706), d Oakley Nydea (2739), s d Oakley Foch (216).

CLASS 218.—*Wessex Saddleback Breeding Sow, farrowed in 1919 or 1920.* [6 entries.]

I. (#6.)—A. HOPE, West Sidborough, Tiverton, **Codford Clementine** (1374), born 27th July, 1920, bred by H. G. Cole, The Pumping Station, Codford ; s Woodford Bobtail (18), d Apple Blossom (196), s d Norman Hero (27).

II. (#3.)—W. M. MILLARD, Middlezoy House, Middlezoy, Bridgwater, **Somerset Duchess** (988), born 24th March, 1920 ; d Buckland Favourite (894).

III. (#2.)—RIGHT HON. SIR A. MOND, BART., Melchet Court, Romsey, Hants. **Melchet Mary 5th** (502), born 26th November, 1919 ; s Caer Kingmaker (9), d Melchet Mary (7), s d Melchet King (1).

R.—MRS. HAYES SADLER, Norsbury, Sutton Scotney, Hants, **Sapphire of Kimbridge** (1741), born April, 1920, bred by L. Withers, Kimbridge, Mottesford ; s Rentpayer of Brigh'stone (149), d Molly of Kimbridge (2588).

V.H.C.—L. H. WITHERS, Hyde Farm, Mottisford, Romsey, Hants, **Belle of Kimbridge** (590), born 1919 ; s Duke of Brightstone (22), d Caer Nancy (68).

CLASS 219.—*Wessex Saddleback Breeding Sow, farrowed in 1921.* [6 entries.]

I. (#6.)—RIGHT HON. SIR A. MOND, BART., Melchet Court, Romsey, Hants, **Melchet Mary 8th** (2441), born 22nd January ; s Cattistock Norman (6), d Melchet Mary 3rd (500), s d Caer Kingmaker (9).

II. (#3.)—RIGHT HON. SIR A. MOND, BART., **Melchet Winter 11th** (2440), born 22nd January ; s Melchet Prince (155), d Melchet Winter (1).

III. (#2.)—G. R. SOUTHWELL, Holbury Farm, Lockerley, Romsey, **Sherfield Sister Surprise** (3128), born 19th March, bred by V. H. Hacker, Glebe Farm, Sherfield, Hants ; s Holbury Lancer (190), d Sherfield Sister Sunset (422), s d Melchet Cooper (2).

R.—MAJOR A. R. WHITTINGTON, D.S.O., Yarty, Axminster, Devon, **Yarty Nancy 2nd** (4445), born 6th May ; s Yarty Prince (539), d Yarty Nag 1st (2189), s d Screech Hill Stephen (140).

CLASS 220.—*Pair of Wessex Saddleback Breeding Sows, farrowed in 1922.* [3 entries.]

I. (#5.)—MALDEN-OAKLEY PIG HERD COMPANY, LTD., Overton, Hants, **Oakley Nancy 2nd** (4604), and **Oakley Natty** (4605), born 10th January ; s Wellow Duke (628), d Oakley Nancy (865).

II. (#2.)—SIR W. G. WATSON, BART., Sulhamstead Park, near Reading, born 7th January ; s Ashe Hero 2nd (420), d Kennet Dolly 3rd (471), s d Cattistock Norman (6).

III. (#1.)—EXORS. OF THE LATE H. T. HOLLOWAY, Court Farm, Imber, Devizes, **Imber Court Lady** (4902), and **Imber Caer Becky** (4899), born 9th March; s Birtmoreton Down (301), d Caer Becky (79), s d Old Pig.

GOLD MEDAL.

Value £5 5s. for the best Pig exhibited in Classes 215 to 220, and a Silver Medal to the Breeder who was not the exhibitor of the Animal winning the Gold Medal.

I.—A. HOPE, West Sidborough, Tiverton, **Codford Clementine** (1374), born 27th July, 1920, bred by H. G. Cole, The Pumping Station, Codford; s Woodford Bobtail (18), d Apple Blossom (196), s d Norman Hero (27).

R.—A. HOPE, Sidborough Snout, born 6th January; s Pearash Luther (332), d Caer Mrs. Micawber (565), s d Brightstone Rover (10).

PRODUCE.

CIDER.

CLASS 221.—*Cask of not less than 9 and not more than 30 gallons of Cider, made in 1921, of a specific gravity not exceeding 1.015 at 60 deg. Fahr.* [5 entries.]

I. (#3.)—H. J. DAVIS.

II. (#2.)—H. J. DAVIS.

III. (#1.)—PULLIN BROS.

C.—J. M. PARRY & Co.

CLASS 222.—*12 Quart Bottles of Cider, made in 1921, of a specific gravity not exceeding 1.015 at 60 deg. Fahr.* [5 entries.]

I. (#3.)—J. M. PARRY & Co.

II. (#2.)—PULLIN BROS.

III. (#1.)—H. J. DAVIS.

R.—H. J. DAVIS.

CLASS 223.—*Cask of not less than 9 and not more than 30 gallons of Cider, made in 1921.* [5 entries.]

I. (#3.)—PULLIN BROS.

II. (#2.)—H. J. DAVIS.

III. (#1.)—H. J. DAVIS.

CLASS 224.—*12 Quart Bottles of Cider, made in 1921.* [8 entries.]

I. (23.)—J. M. PARRY & Co.

II. (22.)—PULLIN BROS.

III. (21.)—J. M. PARRY & Co.

R.—H. J. DAVIS.

V.H.C.—J. M. PARRY & Co.

H.C.—H. J. DAVIS.

CLASS 225.—*12 Quart Bottles of Cider, made in any year previous to 1921.* [5 entries.]

I. (23.)—J. M. PARRY & Co.

II. (22.)—J. M. PARRY & Co.

III. (21.)—YEOMANS BROS.

C.—H. J. DAVIS.

CHEESE.

CLASS 226.—*Three Cheddar Cheeses (not less than 56 lbs. each) made in 1921.* [2 entries.]

I. (210.)—M. PORTCH.

R. & V.H.C.—H. H. PICKFORD.

CLASS 227.—*Three Cheddar Cheeses (not over 56 lbs. each) made in 1921.* [4 entries.]

I. (23.)—M. PORTCH.

II. (25.)—A. STONE & SON.

R.—D. J. COOK.

CLASS 228.—*Four Loaf or other Truckle Cheeses, made in 1921.* [8 entries.]

I. (25.)—H. H. PICKFORD.

II. (23.)—MISS A. SYMONS.

III. (22.)—MRS. E. W. EVANS.

R.—A. STONE & SON.

H.C.—E. PADFIELD.

CLASS 229.—*Three Caerphilly Cheeses, made in 1922.* [8 entries.]

I. (25.)—MISS A. SYMONS.

II. (23.)—MISS A. E. MATTHEWS.

III. (22.)—A. F. SOMERVILLE.

R.—MRS. A. BLATCHFORD.

C.—F. GRIST.

CREAM CHEESE, BUTTER AND CREAM.

CLASS 230.—*Three Cream or other Soft Cheeses.* [11 entries.]

- I. (23.)**—T. R. BOLITHO.
- II. (22.)**—CATHEDRAL DAIRY.
- III. (21.)**—MISS A. PRITCHARD.

CLASS 231.—*2lbs. of Fresh (or very slightly salted) Butter.* [33 entries.]

- I. (24.)**—MRS. J. WAY.
- II. (23.)**—MRS. L. R. MILDON.
- III. (22.)**—MRS. L. MATTHEWS.
- IV. (21.)**—MRS. N. L. MARTIN.
- R.**—THE EARL OF MOUNT EDGUMBE.
- V.H.C.**—MISS B. E. NORTHCOTE.
- H.C.**—MRS. J. H. HEARN.—HON. MRS. PEEK.
- C.** MISS J. M. SELDON.

CLASS 232. *2lbs. of Butter, in the making of which no salt had been used, judged on the last day of the Show.* [27 entries.]

- I. (24.)**—MRS. J. WAY.
- II. (23.)**—MRS. L. R. MILDON.
- III. (22.)**—MRS. L. MATTHEWS.
- IV. (21.)**—A. F. SOMERVILLE.
- R.**—MISS B. E. NORTHCOTT.
- V.H.C.**—MRS. GATHORNE HILL.
- H.C.**—MRS. F. GERRY.

(The Prizes in Class 233 were given by the Trustees of "The John Boscawen Prize Fund," Cornwall.)

CLASS 233.—*2lbs. of Butter, made from Scalded Cream by a Student of the Cornwall County Dairy School.* [18 entries.]

- I. (23.)**—MISS M. E. BREEN.
- II. (22.)**—MISS J. A. EVERY.
- III. (21.)**—MRS. J. HUDDY.
- R.**—MRS. C. E. FAULL.
- V.H.C.**—MISS D. FOSTER.—MISS L. M. MITCHELL.
- H.C.**—MRS. M. T. MADDEVER.

CLASS 234.—*12lbs. of Keeping Butter, in a jar or crock, delivered to the Secretary 4 weeks before the Show.* [13 entries.]

- I. (25.)**—MRS. E. G. CARTER.
- II. (24.)**—MRS. L. R. MILDON.

III. (23.)—MRS. A. A. BERE.

R.—MRS. C. E. FAULL.

V.H.C.—MRS. N. L. MARTIN.

CLASS 235.—*Four half-pounds of Scalded Cream.* [9 entries.]

I. (23.)—LORD ST. LEVAN.

II. (22.)—MRS. C. E. FAULL.

III. (21.)—MRS. J. WAY.

(The Prizes in Classes 256 to 258 were given by the Plymouth Local Committee.)

CLASS 256.—*2lbs. of Butter, made by a resident within a radius of 30 miles from Plymouth.* [10 entries.]

I. (23.)—MRS. N. L. MARTIN.

II. (22.)—THE EARL OF MOUNT EDGUMBE.

III. (21.)—MRS. J. H. HEARN.

R.—MRS. E. GUEST.

CLASS 257.—*2lbs. of Butter, made up into not more than four ornamental designs for the table, made by a resident within a radius of 30 miles from Plymouth—First prize, £3—second, £2—third, £1.*

[No ENTRY.]

CLASS 258.—*2lbs. of Scalded Cream, made by a resident within a radius of 30 miles from Plymouth.* [5 entries.]

I. (23.)—MRS. E. J. STROUD.

II. (22.)—MRS. N. L. MARTIN.

III. (21.)—MISS M. WILLIAMS.

COMPETITIONS.

BUTTER-MAKING.

(No Winner of a first prize given by this Society for Butter-making during the last three years was eligible to compete in Class 237 or 238).

(The Prizes in Classes 259 and 260 were given by the Devon County Agricultural Committee, and were confined to pupils who had attended Classes held by the Devon County Council).

CLASS 236.—*For Children under 14 years of age, attending School. On the 1st day of the Show.* [20 entries.]

I. (23.)—MISS M. GORMAN.

II. (22.)—MISS B. DAVEY.

III. (21.)—MISS R. E. HUNKIN.

IV. (10s.)—MISS E. CLEMENTS.

R.—MISS E. SCREECH.

V.H.C.—W. PENLEBRICK.

H.C.—MISS M. SIMMONS.

C.—MISS F. JACOB.—MISS F. PASCOE.—MISS V. THOMAS.—MISS D. TRETHEWY.

CLASS 237. —*For Men and Women, bona fide workers on a farm. On the 2nd day of the Show.* [20 entries.]

I. (24.)—MISS C. PANTALL.

II. (23.)—MRS. M. POOLEY.

III. (21 10s.)—MISS D. E. NICHOLAS.

IV. (21.)—MISS J. A. EVERY.

R.—MISS R. D. EVERY.

V.H.C.—MISS L. M. MITCHELL.—MRS. C. A. SIMMONS.

H.C.—MISS E. M. PRICE.

C.—MISS L. L. MITCHELL.—MISS A. RUGMAN.

CLASS 238. —*For Students who had been through a course of instruction in Buttermaking at any County Council School, and who had not previously won a first or second prize at one of the Society's Shows. On the 3rd day of the Show.* [20 entries.]

I. (24.)—MISS L. M. MITCHELL.

II. (23.)—MISS J. A. EVERY.

III. (21 10s.)—MISS E. M. PRICE.

IV. (21.)—MISS D. E. NICHOLAS.

R.—MISS M. F. WILLIAMS.

V.H.C.—MISS D. EDWARDS.

H.C.—MISS M. M. EDWARDS.—MISS L. SELLEY.

C.—MRS. W. HILL.—MISS E. HOLLOWAY.

CLASS 259. —*For Boys and Girls under 15 years of age, on the 3rd day of the Show.* [7 entries.]

I. (22.)—MISS M. M. EDWARDS.

II. (21 10s.)—MISS E. M. READ.

III. (21.)—MISS R. E. HUNKIN.

IV. (10s.)—MISS A. GOSS.

R.—MISS O. STACEY.

CLASS 239.—*For Men and Women. On the 4th day of the Show.*
[20 entries.]

- I. (#4.)**—MRS. M. POOLEY.
- II. (#3.)**—MISS R. D. EVERY.
- III. (#1 10s.)**—MISS R. JAMES.
- IV. (#1.)**—MISS J. A. EVERY.
- R.**—MISS D. E. NICHOLAS.
- V.H.C.**—MISS E. M. MORTIMER.—MISS E. M. PRICE.
- H.C.**—MISS W. HILL.—MISS L. SELLEY.
- C.**—MISS M. F. WILLIAMS.

CLASS 260.—*For Men and Women, on the 4th day of the Show.*
[17 entries.]

- I. (#3.)**—MISS A. HARDING.
- II. (#2.)**—MISS M. M. EDWARDS.
- III. (#1.)**—MRS. J. DART.
- IV. (10s.)**—MISS K. HAWKINS.
- R.**—MISS E. GRIFFITHS.
- V.H.C.**—MISS D. EDWARDS.
- H.C.**—MRS. C. A. SIMMONS.
- C.**—MISS A. GOSS.—MISS M. HAWKINS.

CLASS 240.—*For Winners of First and Second Prizes in the Butter-making Classes 236 to 239 and 259 and 260, or at any previous meeting of the Society. On the 5th day of the Show.* [9 entries.]

- I. (Gold Medal.)**—MRS. M. POOLEY.
- II. (Silver Medal.)**—MISS C. PANTALL.
- III. (Bronze Medal.)**—MISS R. D. EVERY.
- R.**—MISS J. A. EVERY.
- V.H.C.**—MISS L. M. MITCHELL.
- H.C.**—MISS R. JAMES.
- C.**—MISS A. HARDING.

MILKING.

CLASS 241.—*For Men, 16 years of age and over.* [4 entries.]

- I. (#1 10s.)**—W. R. BEER.
- II. (#1.)**—G. F. CRYER.
- III. (15s.)**—R. ACAMAN.

CLASS 242.— *For Women, 16 years of age and over.* [7 entries.]

I. (£1 10s.)—MISS A. SYMONS.

II. (£1.)—MISS L. D. PAUL.

III. (15s.)—MISS D. E. NICHOLAS.

R.—MISS J. A. EVERY.

H.C.—MISS M. F. WILLIAMS.

C.—MISS R. D. EVERY. —MISS L. M. MITCHELL.

CLASS 243. *For Boys and Girls under 16 years of age.* [7 entries.]

I. (£1 10s.) MISS G. E. HICKS.

II. (£1.)—W. GORMAN.

III. (15s.)—J. OUGH.

IV. (10s.) —MISS I. GORMAN.

R.—E. VIGARS.

V.H.C. —MISS A. D. ARTHUR.

CHAMPION PRIZES.

GIVEN BY G. J. L. LANG, ESQ., J.P., SALTASH.

For the best Milker in Classes 241 and 242.

I. (£1 1s.)—MISS A. SYMONS.

R.—W. R. BEER.

For the best Milker in Class 243.

I. (£1 1s.)—MISS G. E. HICKS.

SHOEING.

(The Prizes in Classes 261 and 262 were given by the Devon County Agricultural Committee and were confined to men who had attended Classes under the Devon County Council).

CLASS 244. *For Cart Horse Shoeing, by Smiths who had not previously won the First prize in a corresponding class at one of the Society's Meetings, or a Championship Prize at any National or County Agricultural Society's Show. On the 2nd day of the Show.* [18 entries.]

I. (£4.)—J. D. G. HARRIS, A.F.C.L., R.S.S.

II. (£3.)—G. TROUT, R.S.S.

III. (£2.)—J. HILL, A.F.C.L.

IV. (£1.)—G. H. FOOT.

H.C.—C. S. DAVEY.—F. FOLLEY.—W. HORTON.

CLASS 261.—*For Cart Horse Shoeing, by Smiths under 25 years of age. On the 2nd day of the Show. [2 entries.]*

I. (24.)—A. E. MERRIFIELD. .

II. (23.)—G. GALE, R.S.S.

CLASS 245.—*For Nag Horse Shoeing, by Smiths who had not previously won the First prize in a corresponding class or a Championship prize at any National or County Agricultural Society's Show. On the 3rd day of the Show. [19 entries.]*

I. (24.)—C. S. DAVEY.

II. (23.)—J. HILL, A.F.C.L.

III. (22.)—H. F. GLIDDON, R.S.S.

IV. (21.)—S. J. DANIEL, R.S.S.

H.C.—J. H. BAKER, JUN.—L. BASTIN.—F. E. MASTERS, R.S.S.—G. TROUT, R.S.S.—J. VANSTONE, A.F.C.L.

CLASS 262.—*For Nag Horse Shoeing, by Smiths over 25 years of age On the 3rd day of the Show. [11 entries.]*

I. (24.)—F. FOLLEY.

II. (23.)—C. SMITH, R.S.S.

III. (22.)—J. HILL, A.F.C.L.

IV. (21.)—J. H. BAKER, JUN.

H.C. P. NEVE.—H. F. GLIDDON, R.S.S.

CLASS 246. — *Champion Class. For Nag Horse Shoeing, by previous winners of a First prize at the Society's Show, or a Championship prize at any National or County Agricultural Society's Show. On the 4th day of the Show. [3 entries.]*

I. (24.)—W. HORTON.

II. (23.)—F. R. WHITEHORN, R.S.S.

III. (22.)—L. MAUNDER.

CLASS 247.—*For Shoe Making or Turning, by Smiths, the patterns and description of the Shoes to be supplied by the Judge. On the 4th day of the Show. [12 entries.]*

I. (24.)—C. S. DAVEY.

II. (23.)—W. HORTON.

III. (21.)—L. MAUNDER.

IV. (10s.)—F. R. WHITEHORN, R.S.S.

H.C.—J. H. BAKER, JUN.—P. NEVE.

MILK-RECORDED HERDS.

(The Prizes in Class 1 were given by Lord Clinton and the South Devon and District Milk Recording Society, and in Classes 2 and 3 by Lord Astor).

CLASS 1. *Best Dairy Herd, the owner to be a member of the South Devon and District Milk Recording Society.* [1 entries.]

I. (£20.)—R. SKINNER, Stretchford, Buckfastleigh.

II. (£15.)—R. HALL, Ferry House, Bere Alston.

III. (£10.) W. HUNT, Tracey's Farm, Berry Pomeroy, Totnes.

R.—CAPT. A. H. STARKEY, Dittisham Court, near Dartmouth.

CLASS 2. - *Herd of over 10 and under 25 Cows, best managed to ensure the production of Clean Milk, the property of a Yeoman or Tenant Farmer residing within 30 miles of Plymouth.* [2 entries.]

II. (£6.)—R. HALL, Ferry House, Bere Alston.

III. (£4.)—R. SKINNER, Stretchford, Buckfastleigh.

CLASS 3. *Herd of over 25 Cows, best managed to ensure the production of Clean Milk, the property of a Yeoman or Tenant Farmer residing within 30 miles of Plymouth—First prize, £10—second, £6 third, £4.*

NO ENTRY.

SPECIAL PRIZE.

GIVEN BY G. MARTYN, ESQ., OF TREMEDIAN, LISKEARD.

A Silver Cup, value £10, for the best Herd in Classes 2 and 3.

I.—R. HALL, Ferry House, Bere Alston.

A Certificate was awarded to each Competitor in Classes 2 and 3, who in the opinion of the Judges, produced Milk of a sufficiently high hygienic quality, and prizes of £3, £2 and £1, were awarded to the Head Cowman in charge of the Herds gaining First, Second and Third prizes respectively in each class.

SMALL HOLDINGS.

(The Prizes in Classes 1, 2 and 3 were offered by the Devon County Agricultural Association and the Plymouth Local Committee; the Prizes in Classes 3 and 4 by Devon gentlemen interested in County Council Small Holdings, and the Prizes in Class 5 by Lord St. Levan and the Local Allotments Societies).

(Classes 1 and 2 were not open to tenants of the County Council).

CLASS 1.—*Small Holding of over 15 and under 50 acres, situate in Devon—First prize, £10—second, £5—third, £2.*

NO ENTRY.

CLASS 2.—*Small Holding of over 1 acre and not more than 15 acres, situate in Devon—First prize, £10—second, £5—third, £2.*

NO ENTRY.

(Classes 3 and 4 were open only to Ex-Service tenants of the County Council).

CLASS 3.—*Small Holdings of over 15 and under 50 acres, situate in Devon.* [9 entries.]

I. (£15.)—G. C. M. BAULKWELL, Tarncombe, Umberleigh, Devon, "Lower Northchurch" (nearest station, Chappleton, 2 miles), 48½a.

II. (£7.)—W. J. SANDERS, Thornes, Roborough, Beaford, North Devon, "Part Glebe" (nearest station, Portsmouth Arms, 4 miles), 32a.

III. (£3.)—C. L. TRANT, Guilliford, Mamhead, near Exeter, "Guilliford" (nearest station, Starcross, 3 miles), 34a.

R.—W. HART, C'ombe-fishacre, Ipplepen, Devon, "No. 2 Holding, C'ombe-fishacre" (nearest station, Newton Abbot, 5 miles), 50a.

CLASS 4.—*Small Holding of over 1 and not more than 15 acres, situate in Devon.* [2 entries.]

I. (£10.)—G. S. LEACH, Hill Crest Fruit Gardens, Starcross, Devon, "Hill Crest Fruit Gardens" (nearest station Starcross or Dawlish, 2 miles), 5½a.

II. (£5.)—C. J. BOWERMAN, C'oftan C'ross, Starcross, Devon, "Duch aller" (nearest station, Starcross, 1½ miles), 7a.

ALLOTMENTS.

(Classes 5 and 6 were open to Allotment Holders situate within five miles of the Guildhall, Plymouth, subject to Condition 2).

Allotments entered in Class 5 first competed for "District" Prizes, and were judged under the supervision of the Local Allotments Committee, and prizes as mentioned below were awarded in each Allotment District. The First and Second Prize winners then competed for the Champion Prizes.

CLASS 5.—*Allotment of not more than 10 Perches.*

I. (£1 10s.)—C. W. BURT, 42, Harwell Street, Plymouth. —R. MARCH, 46, Renown Street, Devonport. —G. BROWNING, 48, Elm Road, Mannamead.

II. (£1.)—Capt. R. WATTS, R.M.L.I., Trafalgar House, Stoke, Devonport. —C. GODDARD, 2, Florence Street, St. Budeaux. —C. WHITE, 37, Lipsom Hill Terrace, Plymouth.

III. (10s.)—J. NICOLLE, 25, Cambridge Lane East, Devonport. —C. RUSE, 25, Northesk Street, Devonport. —T. UPSTER, 99, Salisbury Road, Plymouth.

CHAMPION PRIZES.

GIVEN BY H.R.H. THE PRINCE OF WALES, K.G.

Best Allotment of those gaining 1st Prize in Class 5.

Best Allotment of those gaining 2nd Prize in Class 5.

I. (£10.)—Capt. R. WATTS, R.M.L.I.

II. (£5.)—C. GODDARD.

CLASS 6.—*An exhibit of not less than 4 or not more than 6 varieties of Produce, grown on an Allotment within 5 miles of the Guildhall, Plymouth, to be exhibited in the Show Yard—First prize, £3—second, £2—third, £1.*

NO ENTRY.

POULTRY.

(UNDER POULTRY CLUB RULES).

(The Birds in Classes 1 to 49 must have been hatched previous to January 1st, 1922).

CLASS 1.—ANY PURE BREED, BEST MATED TO PRODUCE TABLE POULTRY.—COCK AND THREE HENS, BRED IN 1920 OR 1921 (THE PROPERTY OF ONE EXHIBITOR). [5 entries.]

I. (£3.) NORTHCOTT & SON, *Indian Game and Dark Dorkings*.

II. (£2.)—J. H. BAKER & SONS, *Indian Game*.

R.—TEMPLEMAN & HALL, *Indian Game*.

V.H.C. MAJOR G. MUNDY, *Indian Game*.

H.C. F. L. KERSWELL, *Indian Game*.

CLASS 2.—COCHIN OR BRAHMA, COCK. [6 entries.]

I. (£1.) —J. C. TOZER, *Brahma*.

II. (15s.)—W. H. BREWER.

III. (10s.) MISS I. K. ANDERSON, *Brahma*.

R. —J. C. TOZER, *Brahma*.

CLASS 3.—COCHIN OR BRAHMA, HEN. [2 entries.]

I. (£1.) —W. H. BREWER.

CLASS 4.—PLYMOUTH ROCK, COCK. [8 entries.]

I. (£1.) —W. H. BREWER.

II. (15s.) F. J. THOMAS.

III. (10s.)—B. L. ROSKELLEY.

R.—KING & SKINNER.

V.H.C.—MAJOR J. A. MORRISON, D.S.O.

H.C.—KING & SKINNER.

CLASS 5.—PLYMOUTH ROCK, HEN. [7 entries.]

I. (£1.) —W. H. BREWER.

II. (15s.)—B. L. ROSKELLEY.

III. (10s.)—B. L. ROSKELLEY.

R.—F. J. THOMAS.

H.C.—KING & SKINNER.

Prizes awarded for Poultry.

CLASS 6.—ORPINGTON (BUFF), COCK. [4 entries.]

I. (£1.)—F. M. ROGERS.

II. (15s.)—MAJOR J. A. MORRISON, D.S.O.

R.—P. B. GOVETT.

CLASS 7.—ORPINGTON (BUFF), HEN. [4 entries.]

I. (£1.) MAJOR J. A. MORRISON, D.S.O.

II. (15s.)—F. M. ROGERS.

R.—P. B. GOVETT.

CLASS 8.—ORPINGTON (BLACK), COCK. [6 entries.]

I. (£1.)—JOHNS BROS.

II. (15s.) —JOHNS BROS.

III. (10s.) —C. J. SPINKE.

CLASS 9. —ORPINGTON (BLACK), HEN. [4 entries.]

I. (£1.) B. L. ROSKELLEY.

II. (15s.) - C. J. SPINKE.

R.—S. E. EMERY.

V.H.C.—JOHNS BROS.

CLASS 10.—ORPINGTON (WHITE), COCK. [1 entry.]

I. (£1.)—W. CORY.

CLASS 11.—ORPINGTON (WHITE), HEN—FIRST PRIZE, £1—SECOND,
15s.—THIRD, 10s.

[No ENTRY.]

CLASS 12.—MINORCA, COCK. [4 entries.]

I. (£1.)—FURSLED BROS.

II. (15s.)—R. J. MADDOCKS.

R.—W. H. PERRING.

CLASS 13.—MINORCA, HEN. [4 entries.]

I. (£1.)—FURSLED BROS.

II. (15s.)—FURSLED BROS.

R.—A. L. TOMS.

CLASS 14.—RHODE ISLAND RED, COCK. [16 entries.]

- I. (£1.)—G. H. MUZZLEWHITE.**
- II. (15s.)—J. H. BAKER & SONS.**
- III. (10s.)—G. H. MUZZLEWHITE.**
- R.—MISS F. E. LASCELLES.**
- V.H.C.—J. PINCH & SON.**
- H.C.—MISS F. E. LASCELLES—G. FOALE.**

CLASS 15.—RHODE ISLAND RED, HEN. [9 entries.]

- I. (£1.)—T. A. SCOTT & CO.**
- II. (15s.)—T. ABBOT.**
- III. (10s.)—J. H. BAKER & SONS.**
- R.—MISS M. K. NAPIER.**
- V.H.C.—MISS R. A. C. SANSOM.**

CLASS 16.—SUSSEX (SPECKLED), COCK. [8 entries.]

- I. (£1.)—MAJOR J. A. MORRISON, D.S.O.**
- II. (15s.)—W. SNELL.**
- III. (10s.)—H. BLAMEY.**
- R.—E. G. RYALL.**
- V.H.C.—H. HICKS.**

CLASS 17.—SUSSEX (SPECKLED), HEN. [9 entries.]

- I. (£1.)—E. G. RYALL.**
- II. (15s.)—J. B. WILLIAMS.**
- III. (10s.)—E. CORNISH.**
- R.—H. BLAMEY.**
- V.H.C.—E. CORNISH—J. PINCH & SON—W. SNELL.**
- H.C.—CAPTAIN. C. K. GREENWAY.**

CLASS 18.—SUSSEX (ANY OTHER VARIETY), COCK. [5 entries.]

- I. (£1.)—MAJOR J. A. MORRISON, D.S.O.**
- II. (15s.)—MAJOR J. A. MORRISON, D.S.O.**
- R.—F. M. ROGERS.**

CLASS 19.—SUSSEX (ANY OTHER VARIETY), HEN. [7 entries.]

- I. (£1.)—MAJOR J. A. MORRISON, D.S.O.**
- II. (15s.)—MAJOR J. A. MORRISON, D.S.O.**
- III. (10s.)—F. M. ROGERS.**
- R.—H. BLAMEY.**

CLASS 20.—DORKING (ANY VARIETY), COCK. [6 entries.]

- I. (£1.)**—J. H. BAKER & SONS.
II. (15s.)—W. C. BERSEY.
III. (10s.)—A. C. MAJOR.
R.—ENGR.-LIEUT. J. G. DALE, R.N.
V.H.C.—E. G. RYALL.
H.C.—A. C. MAJOR.

CLASS 21.—DORKING (ANY OTHER VARIETY), HEN. [4 entries.]

- I. (£1.)**—W. C. BERSEY.
II. (15s.)—A. C. MAJOR.
R.—A. C. MAJOR.

CLASS 22.—FAVEROLLES, COCK OR HEN. [4 entries.]

- I. (£1.)**—R. E. J. BULL.
II. (15s.)—F. J. THOMAS.
R.—C. J. JACKSON.

CLASS 23.—LANGSHAN, COCK OR HEN. [4 entries.]

- I. (£1.)**—R. S. TWIGG.
II. (15s.)—J. W. SANDOE.
R.—M. H. MOORE.

CLASS 24.—WYANDOTTE (SILVER OR GOLD LACED), COCK.
[7 entries.]

- I. (£1.)**—W. A. & R. F. SPENCER.
II. (15s.)—T. ABBOT, *Silver*.
III. (10s.)—ROGERS BROS.
R.—J. RUNDLE.
V.H.C.—B. L. ROSKELLEY.
H.C.—W. H. BREWER.

CLASS 25.—WYANDOTTE (SILVER OR GOLD LACED), HEN. [5 entries.]

- I. (£1.)**—J. RUNDLE.
II. (15s.)—ROGERS BROS.
R.—W. H. BREWER.
V.H.C.—W. BENNETT.
H.C.—R. W. WHITAKER.

CLASS 26.—WYANDOTTE (WHITE), COCK. [13 entries.]

I. (£1.)—W. H. BREWER.

II. (15s.)—B. L. ROSKELLEY.

III. (10s.)—W. CORY.

R.—J. BOLT, Jun.

V.H.C.—W. H. BREWER—H. CLARK.

H.C.—B. L. ROSKELLEY.

CLASS 27.—WYANDOTTE (WHITE), HEN. [9 entries.]

I. (£1.)—B. L. ROSKELLEY.

II. (15s.)—W. CORY.

III. (10s.)—W. H. BREWER.

R.—J. BOLT, Jun.

V.H.C.—P. COLLINGS.

H.C.—MAJOR G. MUNDY.

CLASS 28.—WYANDOTTE (BLACK), COCK. [4 entries.]

I. (£1.)—W. W. THOMAS.

II. (15s.)—W. W. THOMAS.

CLASS 29.—WYANDOTTE (BLACK), HEN. [3 entries.]

I. (£1.)—W. W. THOMAS.

II. (15s.)—W. BENNETT.

CLASS 30.—WYANDOTTE (ANY OTHER COLOUR), COCK. [5 entries.]

I. (£1.)—W. H. BREWER.

II. (15s.)—J. MELLOR.

R.—D. PHILLIPS.

CLASS 31.—WYANDOTTE (ANY OTHER COLOUR), HEN. [5 entries.]

I. (£1.)—W. H. BREWER.

II. (15s.)—W. H. BREWER.

R.—J. MELLOR.

V.H.C.—J. PINCH & SON.

CLASS 32.—LEGHORN (WHITE), COCK. [3 entries.]

I. (£1.)—B. L. ROSKELLEY.

II. (15s.)—A. H. STANBURY.

R.—T. REES.

R.—N. H. REED.

V.H.C.—J. H. BAKER & SON.

H.C.—J. CORNISH & SON.

C.—W. J. CAMP.

CLASS 46.—FRENCH (EXCLUDING FAVEROLLES,) COCK. [4 entries.]

I. (£1.)—G. HENWOOD.

II. (15s.)—G. HENWOOD.

CLASS 47. —FRENCH (EXCLUDING FAVEROLLES,) HEN. [5 entries.]

I. (£1.)—J. SKINNER.

II. (15s.)—G. HENWOOD.

R.—G. HENWOOD.

V.H.C.—J. SKINNER.

H.C.—J. SKINNER.

CLASS 48. ANY OTHER DISTINCT BREED NOT PREVIOUSLY MENTIONED (EXCLUDING BANTAMS), COCK. [8 entries.]

I. (£1.)—J. H. BAKER & SON.

II. (15s.)—R. P. WHEADON, *Black Spanish*.

III. (10s.)—MAJOR J. A. MORRISON, D.S.O.

R.—T. A. SCOTT & CO., *Brown Buttercup*.

V.H.C.—T. ABBOT, *Andalusian*.

H.C.—M. L. BAKER, *Ancona*.

C.—J. SKINNER, *Blue Andalusian*.

CLASS 49.—ANY OTHER DISTINCT BREED NOT PREVIOUSLY MENTIONED (EXCLUDING BANTAMS), HEN. [8 entries.]

I. (£1.)—H. CORRIE.

II. (15s.)—R. P. WHEADON, *Black Spanish*.

III. (10s.)—T. ABBOT, *Andalusian*.

R.—MAJOR J. A. MORRISON, D.S.O.

V.H.C.—J. H. BAKER & SON.

C.—J. SKINNER, *Blue Andalusian*.

SELLING CLASSES.

CLASS 50.—ANY DISTINCT BREED, COCK OR COCKEREL (PRICE NOT TO EXCEED £1 1s.) (9 entries.)

I. (£1.)—W. H. BREWER.

II. (15s.)—B. L. ROSKELLEY, *Wyandotte*.

III. (10s.)—J. H. BAKER & SON.

R.—F. L. KERSWELL, *Indian Game*.

V.H.C. —J. HOW, *Partridge Wyandotte*.

H.C.—W. C. BERSEY, *Dorking*.—N. H. REED.—A. L. TOMS.

CLASS 51.—ANY DISTINCT BREED—HEN OR PULLET (PRICE NOT TO EXCEED £1 1s.) [7 entries.]

I. (21.)—N. H. REED.

II. (15s.)—J. H. BAKER & SON.

III. (10s.)—E. G. RYALL.

R.—NORTHCOTT & SON.

CHICKENS OF 1922.

CLASS 52.—COCHIN, BRAHMA, PLYMOUTH ROCK ORPINGTON, LANGSHAN, SUSSEX OR DORKING, COCKEREL. [7 entries.]

I. (21.)—F. J. THOMAS, *White Rock*, January 3.

II. (15s.)—MAJOR J. A. MORRISON, D.S.O., *Sussex*, January 2.

III. (10s.)—MAJOR J. A. MORRISON, D.S.O., *Sussex*, January 2.

R.—PARK HOUSE POULTRY FARM, *Sussex*, January.

V.H.C.—W. C. BERSEY, *Dorking*, February 6.

CLASS 53.—COCHIN, BRAHMA, PLYMOUTH ROCK, ORPINGTON, LANGSHAN, SUSSEX OR DORKING, PULLET. [15 entries.]

I. (21.)—MAJOR J. A. MORRISON, D.S.O., *Sussex*, January 2.

II. (15s.)—F. J. THOMAS, *White Rock*, January 3.

III. (10s.)—A. C. MAJOR, *Dorking*, January 2.

R.—MAJOR J. A. MORRISON, D.S.O., *Sussex*, January 2.

V.H.C.—H. HARRY, *Barred Rock*, January 5.—F. M. ROGERS, *Light Sussex*, January 2.

H.C.—W. C. BERSEY, *Dorking*, January 28.—P. EAD, jun, 4m. 2d.—C. JONES, *Black Orpington*, January 27.—PARK HOUSE POULTRY FARM, *Sussex*, January.—B. L. ROSKELLEY, *Plymouth Rock*, January 2.—E. G. RYALL, *Dorking*, February 12.

CLASS 54.—MINORCA, WYANDOTTE, LEGHORN, HAMBURG, FAVEROLLES OR FRENCH, COCKEREL. [10 entries.]

I. (21.)—C. W. SPINKS, *White Wyandotte*, January 26.

II. (15s.)—F. P. WILMOTT, M.S.M., *White Wyandotte*, January 11.

III. (10s.)—S. BASSETT, *Duckwing Leghorn*.

R.—F. P. WILMOTT, M.S.M., *White Wyandotte*, January 11.

V.H.C.—MAJOR G. MUNDY, *White Wyandotte*, February 1.

Prizes awarded for Poultry.

CLASS 55.—MINORCA, WYANDOTTE, LEGHORN, HAMBURG,
FAVEROLLES OR FRENCH, PULLET. [8 entries.]

I. (£1.)—LORD DEWAR.

II. (15s.)—S. BASSETT, *Duckwing Leghorn*.

III. (10s.)—S. J. WILLCOCKS, *White Wyandotte*, January 16.

CLASS 56.—GAME, MALAY, OR ANY OTHER DISTINCT BREED NOT
PREVIOUSLY MENTIONED, COCKEREL. [14 entries.]

I. (£1.)—C. H. BALMENT, *Indian Game*, February.

II. (15s.)—E. G. RYALL, *Indian Game*, January 12

III. (10s.)—W. BRENT & SON, *Indian Game*, January or February.

R.—N. H. REED, *Indian Game*.

V.H.C.—R. S. MARSDEN, *Old English Game*, January 19.

H.C.—NORTHCOTT & SON, *Indian Game*, February 2.

CLASS 57.—GAME, MALAY OR ANY OTHER DISTINCT BREED NOT
PREVIOUSLY MENTIONED, PULLET. [14 entries.]

I. (£1.)—NORTHCOTT & SON, *Indian Game*, February 2.

II. (15s.)—N. H. REED, *Indian Game*.

III. (10s.)—R. S. MARSDEN, *Old English Game*, January 19.

R.—J. TAYLOR, *Indian Game*, January 31.

V.H.C.—W. BRENT & SON, *Indian Game*, January or February.—E. G. RYALL, *Indian Game*, January 12.

C.—C. H. BALMENT, *Indian Game*, February.

LIVE TABLE POULTRY.

CLASS 58.—PAIR OF COCKERELS OF ANY PURE BREED, HATCHED
IN 1922. [7 entries.]

I. (£1.)—NORTHCOTT & SON, *Indian Game*, January 4.

II. (15s.)—J. H. BAKER & SON, *Indian Game*, January 3.

III. (10s.)—MAJOR J. A. MORRISON, D.S.O., January 2.

R.—E. G. RYALL, *Indian Game*, January 12.

H.C.—MRS. TABBETT, *Rhode Island Red*, January 15.

CLASS 59.—PAIR OF PULLETS OF ANY PURE BREED, HATCHED IN
1922. [5 entries.]

I. (£1.)—J. H. BAKER & SON, *Indian Game*, January 3.

II. (15s.)—MAJOR J. A. MORRISON, D.S.O., January 2.

R.—NORTHCOTT & SON, *Indian Game*, January 4.

CLASS 60.—PAIR OF CROSS-BRED COCKERELS, HATCHED IN 1922.

[1 entry.]

II. (15s.)—MRS. W. LUCE, *Wyandotte-Rock*, February 24.

CLASS 61. — PAIR OF CROSS-BRED PULLETS, HATCHED IN 1922.

[4 entries.]

I. (21.) — MRS. A. HAMBLY, *Indian Game-Rhode Island Red*, January 3.

II. (15s.) — W. MITCHELL & SON, *Old English Game-Black Wyandotte*, January 7.

SPECIAL PRIZES.

GIVEN BY THE POULTRY CLUB.

Bath and West and Southern Counties Cup (value £10 10s.), for the best Bird in the Show, the property of a Member of the Poultry Club. The Cup to be won three times not necessarily in succession, by the same Exhibitor before becoming his absolute property.

I.—J. H. BAKER & SONS.

A Silver Medal for best Cock or Cockerel in the Poultry Classes, the property of a member of the Poultry Club.

I.—J. H. BAKER & SONS.

A Silver Medal for the best Hen or Pullet in the Poultry Classes, the property of a member of the Poultry Club.

I.—W. BRENT & SON.

The Associated Society's Bronze Medal for the best Bird in the Show (winner need not be a member of the Poultry Club, but must be a member of the Bath and West and Southern Counties Society).

I.—MAJOR J. A. MORRISON, D.S.O.

DUCKS, GEESSE AND TURKEYS.

CLASS 62.—DRAKE OR DUCK (LYLESBURY). [3 entries.]

I. (21.)—G. T. MACBEAN.

II. (15s.)—G. T. MACBEAN.

CLASS 63.—DRAKE OR DUCK (ROUEN). [4 entries.]

I. (21.)—MAJOR J. A. MORRISON, D.S.O.

II. (15s.)—MAJOR J. A. MORRISON, D.S.O.

CLASS 64.—DRAKE OR DUCK (PEKIN). [5 entries.]

I. (21.)—W. G. KINGWELL.

II. (15s.)—W. G. KINGWELL.

E.—W. G. KINGWELL.

H.C.—W. MITCHELL & SON.

Prizes awarded for Poultry.

CLASS 65.—GANDER OR GOOSE. [1 entry.]

I. (21.)—MAJOR J. A. MORRISON, D.S.O.

CLASS 66.—TURKEY, COCK OR HEN. [5 entries.]

I. (21.)—T. ABBOTT.

II. (15s.)—MAJOR J. A. MORRISON, D.S.O.

R.—H. CLARK.

DEAD TABLE POULTRY.

CLASS 67.—PAIR OF COCKERELS OF 1922, OF ANY PURE BREED
[5 entries.]

I. (21.) MAJOR J. A. MORRISON, D.S.O., January 2.

II. (15s.)—PARK HOUSE POULTRY FARM, *Sussex*, January.R.—PARK HOUSE POULTRY FARM, *Sussex*, January.CLASS 68. PAIR OF PULLETS OF 1922, OF ANY PURE BREED.
[5 entries.]

I. (21.)—W. MITCHELL & SONS, January 3.

II. (15s.)—MAJOR J. A. MORRISON, D.S.O., January 2.

R.—PARK HOUSE POULTRY FARM, January.

CLASS 69.—PAIR OF CROSS-BRED COCKERELS OF 1922. [2 entries.]

I. (21.)—W. MITCHELL & SONS, *Indian Game-Sussex*, January 3.R.—W. MITCHELL & SONS, *Indian Game-Sussex*, January 3.

CLASS 70.—PAIR OF CROSS-BRED PULLETS OF 1922. [3 entries.]

I. (21.)—W. MITCHELL & SONS, *Indian Game-Sussex*, January 1.II. (15s.)—W. MITCHELL & SONS, *Indian Game-Sussex*, January 1.R.—MAJOR G. MUNDY, *Old English Game-Plymouth Rock*, January 20.

CLASS 71.—PAIR OF DUCKLINGS OF 1922. [2 entries.]

II. (15s.)—MRS. H. PAULL, *Runner-Aylesbury*, March 3.

Bath and West and Southern Counties Society.

OBJECTS OF THE SOCIETY AND PRIVILEGES OF MEMBERSHIP.

ANNUAL EXHIBITIONS.

THE Society annually holds an Exhibition in some city or town in England or Wales. Each section of the Society's district is visited at intervals, so that most Members have an opportunity of seeing the Show in their own neighbourhood every few years. Prizes to a large amount are given for Horses, Cattle, Sheep, Pigs, Farm Produce, &c. Provision is also made for the exhibition of Agricultural Implements and Machinery, Seeds, Cattle Foods, Artificial Manures, and articles of general utility. A substantially built and completely equipped Working Dairy on a large scale is a special feature of these Exhibitions. Here explanatory demonstrations and comparative tests of implements and processes are carried on, with the assistance of well-known practical and scientific experts, and Butter-making Competitions are held. Among the features of the Annual Meeting are Shoeing, Milking and other Competitions, Poultry and Horticultural Shows, and Exhibitions illustrative of Bee-keeping, Home Industries, Manufactures, Nature Study and Forestry.

Membership entitles to free admission to the Annual Exhibition, and also to the Grand Stand overlooking the Horse and Cattle Ring, to the Reserved Seats in the Working Dairy, and to the use of the Members' Special Pavilion for Luncheons, Reading, Writing, &c.

Entries can be made by Members (elected on or before the last Tuesday in January preceding the Show, or who have paid two years subscription before the date of closing of entries), at about half the Fees payable by Non-Members.

THE JOURNAL.

All Members receive free of charge the Society's Journal, which is published annually bound in cloth. It has for its aim the dissemination of agricultural knowledge in a popular form, and, in addition to original articles by well-known agricultural authorities, it contains particulars of the Society's general operations, full reports of its experimental and research work, prize awards, financial statements, lists of Members, reviews of new books on agriculture, &c. (The price of the Journal to non-Members is 6s. 9d. post free.)

CHEMICAL AND OTHER FACILITIES.

The Society has a Consulting Chemist *from whom Members can obtain analyses and reports at reduced rates of charge.* An arrangement has also been made under which Members of the Society can obtain, free of charge, from the National Fruit and Cider Institute at Long Ashton, analyses of cider-apples and perry-pears, and, with a view to assisting farmers and others in dealing with insect and other pests which affect agriculture, horticulture, &c., the Council have availed themselves of an offer from the Board of Economic Biology of the University of Bristol to investigate the nature of any insect or other pest and report upon it free of charge.

EXPERIMENTS.

Experiments on crops are conducted at experimental stations in various parts of the Kingdom, and *Members are enabled to take part in these and to receive reports thereon.*

***. ART-MANUFACTURES, NATURE STUDY, FORESTRY, &c.**

One of the objects for which the Society was founded was the encouragement of Arts as well as Agriculture, and, to this end, exhibitions are held of Art-Manufactures and of work representative of Arts and Handicrafts. Exhibitions are also held illustrating Nature Study, as a branch of Education; the Science of Forestry, &c.

TERMS OF MEMBERSHIP.**ANNUAL SUBSCRIPTIONS.**

Governors, not less than	..	..	..	..	£2
Ordinary Members, not less than	..	..	..	..	£1
Tenant Farmers, the rateable value of whose holdings does } 10s.					
not exceed £200 a-year, not less than }					

Governors, who are eligible for election as President or Vice-President. are entitled, in addition to the privileges already mentioned, to an extra Season Ticket for the Annual Exhibition and for the Grand Stand, &c. Governors subscribing more than £2 are entitled to a further Ticket for every additional £1 subscribed.

Members subscribing less than £1 are entitled to all the privileges of Membership except that of entering Stock at reduced fees, and their admission Ticket for the Annual Show is available for *one day only* instead of for the whole time of the Exhibition.

LIFE COMPOSITIONS.

Governors may compound for their Subscription for future years by payment, in advance, of £20; and Members by payment, in advance, of £10. Governors and Members who have subscribed for twenty years may become Life Members on payment of half these amounts.

Any person desirous of joining the Society can be proposed by a Member, or by the Secretary.

3, Pierrepont Street, Bath.

Telegraphic Address—"AGRICULTURE, BATH."

Telephone No. 610.

Bath and West and Southern Counties Society.

GENERAL LAWS.

As revised in accordance with the Report of a Special Committee; which Report was received and adopted by the Annual General Meeting of Members, held on May 30, 1895.

COMPOSITION OF THE SOCIETY.

I. The Society shall consist of a President, Vice-Presidents, Trustees, Council Treasurer, Secretary, and Members.

OBJECTS.

II. The Society shall have the following objects :—

- (a) To hold Exhibitions of breeding stock, agricultural implements, and such other articles connected with agriculture, arts, manufactures or commerce, as may be determined upon by the Council.
- (b) To conduct practical and scientific investigations in agriculture.
- (c) To promote technical education in agriculture by providing means of systematic instruction.
- (d) To publish a Journal for circulation.

SUBSCRIPTIONS.

III. The Annual Subscription for Members shall be as follows :—

Governors (who are eligible for election as President or Vice-President), not less than	£2
Ordinary Members, not less than	£1
Tenant Farmers (the rateable value of whose holdings does not exceed £200 a-year), not less than	10s.

IV. The payment of £20 in one sum shall constitute a Governor for life, and of £10 in one sum an Ordinary Member for life; but any Governor who has subscribed not less than £2 annually for a period of twenty years may become a Life Governor on the further payment of £10 in one sum; and any Ordinary Member, who has subscribed not less than £1 annually for the same period may become a Life-Member on the further payment of £5 in one sum.

V. Subscriptions shall become due and be payable in advance on the 1st of January in each year or as soon as the Subscriber has been elected a Member. When the election takes place during the last quarter of the year the subscription payable on election will be considered as applying to the ensuing year.

VI. A Member shall be liable to pay his subscription for the current year unless he shall have given notice, in writing, to the Secretary before January 1st of his intention to withdraw.

GOVERNING BODY.

VII. The entire management of the Society—including the making of Bye-laws, election of Members, determining the Prizes to be awarded, appointing Committees, fixing the Places of Meetings and Exhibitions, appointing or removing the Treasurer, Secretary, and such other officers as may be required to carry on the business of the Society—shall be vested in the Council who shall report its proceedings at the Annual Meetings of the Society.

VIII. The Council shall consist of the Patron (if any), President, Vice-Presidents, Trustees, and Treasurer (who shall be *ex-officio* Members), and of sixty-six elected Members.

ELECTION OF PRESIDENT, VICE-PRESIDENTS, TRUSTEES AND COUNCIL.

IX. The election of a President for the year, of any additional Vice-Presidents or Trustees, and of the Members of Council representing the Divisions named in Law X., shall take place at the Annual Meeting of the Society, and they shall enter into office at the conclusion of the Exhibition during which such Annual Meeting has been held.

X. The sixty-six Members of the Council referred to in Laws VIII. and IX. shall consist of fifty-eight persons residing or representing property in the following Divisions, viz. :—

Twelve from the Counties of Devon and Cornwall, which shall be called the Western Division ;

Twenty-four from the Counties of Somerset, Dorset, and Wilts, which shall be called the Central Division ;

Twelve from the Counties of Hants, Berks, Oxon, Bucks, Middlesex, Surrey, Sussex, and Kent, which shall be called the Southern Division ; and

Ten from the Counties of Worcester, Gloucester, Hereford and Monmouth, and the Principality of Wales, which shall be called the North-Western Division.

The remaining eight shall be elected (irrespective of locality) from the general body of members, and shall form a Division which shall be called the " Without Reference to District " Division.

XI. One-half of the elected Members in each of the five Divisions named in Law X. shall retire annually by rotation, but shall be eligible for re-election.

XII. The Council shall have power to nominate a President, Vice-Presidents, Trustees, and Members of Council for the approval of the Annual Meeting, and to fill up such vacancies in their own body as are left after the Annual Meeting, or as may from time to time occur during the interval between the Annual Meetings.

XIII. Nominations to offices, election to which is vested in the whole body of Members, must reach the Secretary ten days before the meeting at which such vacancies are to be filled up.

MEETINGS.

XIV. The Annual Meeting of the Society shall take place during the holding of the annual Exhibition.

XV. Special General Meetings of the Society may be convened by the President on the written requisition of not less than three Members of Council : and all Members shall have ten days' notice of the object for which they are called together,

XVI. No Member of less than three months' standing, or whose subscription is in arrear, shall be entitled to vote at a Meeting.

EXHIBITIONS.

XVII. The Annual Exhibitions of the Society shall be held in different Cities or Towns in successive years.

XVIII. All Exhibitors shall pay such fees as may be fixed by the Council. Members subscribing not less than £1 per annum, who have been elected previous to February 1st, and have paid the subscription for the current year, or who pay two years subscription before the date of closing of entries, shall be entitled to exhibit at such reduction in these fees as the Council shall determine.

PRIZES.

XIX. All prizes offered at the cost of the Society shall be open for competition to the United Kingdom.

XX. No person intending to compete for any prize offered at the annual Exhibition shall be eligible to act as a judge or to have any voice in the selection of judges to award the premiums in the department in which he exhibits.

XXI. If it be proved to the satisfaction of the Council that any person has attempted to gain a prize in this, or in any other society, by a false certificate or by a misrepresentation of any kind, such person shall thereupon be, for the future excluded from exhibiting in this Society.

JOURNAL.

XXII. The Proceedings of the Society, Awards of Prizes, Financial Statements and Lists of Officers, Governors, and Members, shall be printed annually in the Society's *Journal*, and every Governor and Member, not in arrear with his subscription, shall be entitled to receive one copy, free of expense, and there shall be an additional number printed for sale.

POLITICS.

XXIII.—No motion or question of a political tendency shall be introduced at any meeting of the Society, otherwise than with the consent of two-thirds of the members present at any meeting, and then only after due notice in writing.

ALTERATIONS IN LAWS.

XXIV. No new General Law shall be made or existing one altered, added to or rescinded, except at an Annual or Special General Meeting, and then only provided that a statement of particulars, in writing, shall have been sent to the Secretary at least twenty-one days previous to the Meeting at which the question is to be considered.

LIST OF OFFICERS,

1922-23.

PATRON.

HIS MOST GRACIOUS MAJESTY THE KING.

PRESIDENT.

H R.H. THE PRINCE OF WALES, K.G.

DEPUTY PRESIDENT.

THE RIGHT HON. THE LORD BLYTHSWOOD.

TRUSTEES

- *BATH, THE MARQUIS OF, K.G., Longleat, Warminster.
EDWARDS, C. L. F., The Court, Axbridge, Somerset.
SHELLEY, SIR. J., BART., Shobrooke Park, Crediton.

VICE-PRESIDENTS.

- | | |
|------------------------------------|-------------------------------------|
| BADCOCK, H. J. | Broadlands, Taunton |
| BAKER, G. E. LLOYD | Hardwicke Court, Gloucester |
| *BATH, MARQUIS OF, K.G. . . . | Longleat, Warminster |
| *BEAUFORT, DUKE OF | Badminton, Chippenham |
| BENYON, J. HERBERT | Englefield House, Reading |
| *BLEDISLOE, LORD, K.B.E. . . . | Lydney Park, Glos. |
| *BUTE, MARQUIS OF | The Castle, Cardiff |
| *CLINTON, LORD | Heanton Satchville, Dolton, N.Devon |
| *COVENTRY, THE EARL OF | Croome Court, Worcester |
| EDWARDS, C. L. F. . . . | The Court, Axbridge, Somerset |
| FALMOUTH, VISCOUNT | Tregothnan, Truro |
| HAMBLEDEN, VISCOUNT | Greenlands, Henley-on-Thames |
| HOBHOUSE, RIGHT HON. H. . . . | Hadspen House, Castle Cary |
| *JERSEY, EARL OF | Middleton Park, Bicester, Oxon. |
| *LANSDOWNE, MARQUIS OF, K.G. . . | Bowood, Calne |
| *LLEWELYN, SIR J. T. D., Bart. . . | Penllergaer, Swansea |
| MOUNT EDGUMBE, THE EARL OF . . | Mount Edgumbe, Devonport |
| NAPIER, H. B. . . . | Long Ashton, Bristol |

*. * Those to whose names an asterisk (*) is prefixed have filled the office of President.

VICE-PRESIDENTS—continued.

NEVILLE GRENVILLE, R.	.	.	.	Butleigh Court, Glastonbury
NORTHUMBERLAND, DUKE OF	.	.	.	Albury Park, Guildford
*PLYMOUTH, EARL OF	.	.	.	Hewell Grange, Bromsgrove
POLTIMORE, LORD	.	.	.	Court Hall, North Molton, Devon
*RADNOR, THE EARL OF	.	.	.	Longford Castle, Salisbury
SHELLEY, SIR J., Bart.	.	.	.	Shobrooke Park, Crediton
SILLIFANT, A. O.	.	.	.	Culm Leigh, Stoke Canon, Exeter
SOMERSET, DUKE OF	.	.	.	Maiden Bradley, Bath
STRACHIE, LORD	.	.	.	Sutton Court, Pensford, Somerset
TEMPLE, EARL	.	.	.	Newton St. Loe, Bristol

THE LORD WARDEN OF THE STANNARIES.

THE SECRETARY AND KEEPER OF THE RECORDS OF THE DUCHY OF
CORNWALL.

THE RECEIVER-GENERAL OF THE DUCHY OF CORNWALL.

. Those to whose names an asterisk (*) is prefixed have filled the office of President.

MEMBERS OF COUNCIL.

EX-OFFICIO MEMBERS.

THE PATRON.
THE PRESIDENT.

THE VICE-PRESIDENTS.
THE TRUSTEES.
THE TREASURER.

ELECTED MEMBERS.

WESTERN DIVISION (DEVON AND CORNWALL).

(12 Representatives)

<i>Name.</i>	<i>Address.</i>
BOSCAWEN, REV. A. T.	Ludgvan Rectory, Long Rock, R.S.O., Cornwall
CHICHESTER, MAJOR C. H.	Hall, Bishop's Tawton, Barnstaple
DAW, J. E.	4, Louisa Terrace, Exmouth
LOPES, SIR HENRY Y. B., Bart.	Maristow, Roborough, South Devon
MARTYN, G.	Liskeard, Cornwall
MORLEY, EARL OF	Saltram, Plympton, Devon

<i>Name.</i>	<i>Address.</i>
BUCKINGHAM, REV. PRES.	The Rectory, Doddscombeleigh, Exeter
GIBBS, A. H.	Pytte, Clyst St George, Topham, Devon
MOORE-STEVENS, COL. R. A.	Woodhayes, Whimble, Devon
SHELLEY, J. F.	Posbury House, Crediton
STUDDY, T. E.	Broxtun, Paignton
WILLIAMS, JOHN	Scorrier House, Scorrier, Cornwall

CENTRAL DIVISION (SOMERSET, DORSET, AND WILTS).

(24 Representatives.)

FARWELL, Major E. W.	Hylton Estate Office, Kilmersdon, Bath
GORDON, G. H.	The Barn House, Sherborne, Dorset
HILL, MAJOR V. T.	Woodspring Priory, near Weston-super-Mare
HOARE, SIR H. H. A., Bart.	Stourhead, Zeals, S.O., Wilts
HURLE, J. C.	Kilve Court, Bridgwater
KNIGHT, S. J.	Buckingham Lodge, Keynsham, Bristol
POPHAM, H. L.	Hunstrete House, Pensford, Bristol
RAWLENCE, E. A.	St. Andrew's, Salisbury
RAWLENCE, G. N.	Salisbury
SOMERVILLE, A. F.	Dinder House, Wells
WATSON, CAPT. THE HON. T. H.	Cornistun, Milverton, Somerset
WHITE, A. B., O.B.E.	Charnage, Mere, Wilts

BEAUCHAMP, SIR F. B.	Woodboro' House, Pease-down St. John, Bath
BRIDGMAN, H.	Cleeve Hill Farm, Bristol
BRUFORD, R., M.P.	Nerrols, Taunton
FOX, R. A.	Yate House, Yate, Glos.
GIBSON, J. T.	Warren House, Wrington
MILES, SIR C., Bart.	Manor House, Walton-in-Gordano, Clevedon
NICHOLS, G.	Demerara House, Colston Avenue, Bristol
PARRY-OKEDEN, LT.-COL. U. E. P.	Turnworth, Blandford, Dorset
PEARCE, T. H.	Parsonage Farm, Long Ashton, Bristol
SANDERS, LIEUT.-COL. SIR R. A., Bart., M.P.	Bayford Lodge, Wincanton
TUDWAY, C. C.	The Cedars, Wells, Somt.
WYNFORD, LIEUT.-COL. LORD, D.S.O.	Wynford House, Maiden Newton, Dorset

SOUTHERN DIVISION (HANTS, BERKS, OXON, BUCKS, MIDDLESEX, SURREY, SUSSEX AND KENT).

(12 Representatives.)

ASHCROFT, W.	13, The Waldrons, Croydon
COBB, H. M.	Higham, Rochester
CUNDALL, H.M., I.S.O., F.S.A.	4, Marchmont Gardens, Richmond Hill, Surrey
DRUMMOND, Brig.-Gen. H. W.	Board Room, L.&S.W.R., Waterloo Stn., London
ISMAY, J. H.	Iwerne Minster, Blandford
LLEWELLYN, CAPTAIN L. T. E.	Hackwood, Basingstoke

ACLAND, Rt. Hon. F.	93, Bedford Gardens, Dyke, M.P.
BATHURST, SIR F. H., Bart., D.S.O.	Campden Hill, London, W. 8
FOLKESTONE, VISCT.	Somborne Park, Stockbridge, Hants
JERVOISE, F. H. T.	Longford Castle, Salisbury
SUTTON, E. P. F.	Herrilard Park, Basingstoke
THOMAS-STANFORD, C.	Sidmouth Grange, Earley, Berks
	Preston Manor, Brighton

NORTH-WESTERN DIVISION (WORCESTERSHIRE, GLOUCESTERSHIRE, HEREFORDSHIRE, MONMOUTHSHIRE AND WALES).

(10 Representatives.)

ACKERS, C. P.	Huntley Manor, Glos.
ALEXANDER, H. G.	5, High Street, Cardiff
DRUMMOND, COL. F. D. W., C.B.E.	Cawdor Estate Office, Carmarthen
EVANS, H. M. G.	Plaisia, Llangennech, Carmarthen
LEWIS, COL. H.	Green Meadow, near Cardiff

ALLSIBROOK, A.	Link Elm, Malvern Link
BEST, CAPT. W.	Vivod, Llangollen
COTTERELL, SIR J., Bart.	Garnons, Hereford
LIPSCOMB, G.	Margam Park Estate Office, Port Talbot
MASON, F. F.	Swansea

WITHOUT REFERENCE TO DISTRICT DIVISION.

(8 Representatives.)

HOBHOUSE, A. L.	Hadspen House, Castle Cary, Somerset
MASTERS, A.	Kyneton, Thornbury, Glos.
SHAW, COL. F. S. KENNEDY	Telfont Magna, Salisbury
SWANSEA, LORD	Glanogwr, Bridgend, Glam.

BEST, MAJOR T. G.	East Carleton Manor, Norwich
CLIVE, CAPT. E. A. B.	South Brympton, Yeovil
STORRAR, J. I.	Tredegar Estate Office, Newport, Mon.

STANDING COMMITTEES, 1922-1923

[The PRESIDENT is an *ex-officio* Member of all Committees.]

ALLOTMENT.

Chairman.

BATH, MARQUIS OF, K.G.	BEST, CAPT. W.	SHELLEY, J. F.
BATHURST, SIR F. H.,	MASON, F. F.	STUDDY, T. E.
Bart., D.S.O.	NAPIER, H. B.	WYNFORD, LIEUT.-COL.
		LORD, D.S.O.

CONTRACTS.

NAPIER, H. B., Chairman.

ALLSEBROOK, A.	BEST, CAPT. W.	NEVILLE (GRENVILLE), R.
BATH, MARQUIS OF, K.G.	DAW, J. E.	RAWLENCE, G. N.
BATHURST, SIR F. H.,	MASON, F. F.	STUDDY, T. E.
Bart., D.S.O.		

DAIRY.

NOMERVILLE, A. F., Chairman.

ASHCROFT, W.	HURLE, J. C.	NEVILLE GRENVILLE, R.
CLIVE, CAPTAIN E. A. B.	KNIGHT, S. J.	STRACHIE, LORD
GIBBS, A. H.	LLEWELLYN, L. T. E.	TUDWAY, C. C.
GIBSON, J. T.	NAPIER, H. B.	WHITE, A. R., O.B.E.

DISQUALIFYING.

THE STEWARDS OF LIVE STOCK AND PRODUCE.

EXPERIMENTS AND EDUCATION.

LORD BLEDISLOE, K.B.E., Chairman.

ACKERS, C. P.	HURLE, J. C.	RAWLENCE, E. A.
ALSEBROOK, A.	ISMAY, J. H.	SOMERVILLE, A. F.
ASHCROFT, W.	LIPSCOMB, G.	SUTTON, E. P. F.
BAKER, G. E. LLOYD	NAPIER, H. B.	VOELCKER, DR. J. A., M.A.
BENYON, J. H.	NEVILLE GRENVILLE, R.	WALLACE CAPT. T.,
GIBSON, J. T.	PENBERTHY, PROF. J.,	M.Sc., M.C.
HOBHOUSE, RT. HON. H.	F.R.C.V.S.	

(With power to add to their number.)

FINANCE.

NAPIER, H. B., Chairman.

DAW, J. E. | GIBBS, A. H.

FORESTRY.

LIPSCOMB, G., Chairman.

ACKERS, C. P.	DRUMMOND COL. F. D. W.,	HOARE, SIR H. H. A.,
BLEDISLOE, LORD,	C. B. E.	Bart.
K.B.E.	DUCHESNE, M. C.	NAPIER, H. B.
CLINTON, LORD	EVANS, H. M. G.	

IMPLEMENT REGULATIONS.BATH, MARQUIS OF. K.G., *Chairman.*

BATHURST, SIR F. H., Bart., D.S.O.	MASON, F. F. MOORE-STEVENS, COL. R. A.	NEVILLE GRENVILLE. R. STUDDY, T. E.
BRIST, CAPT. W.	NAPIER, H. B.	
MARTYN, G.		

JOURNAL.EDWARDS, C. L. F., *Chairman.*

ACLAND, RT. HON. F. D., M.P.	BLDISLOE, LORD, K.B.E.
BAKER, G. E. LLOYD	HURLE, J. C.

JUDGES' SELECTION.WYNFORD, LIEUT.-COL. LORD, D.S.O., *Chairman.*

ALEXANDER, H. G.	MASON, F. F.	PARRY-OKEDEN, LIEUT.-
GORDON, G.	MOORE-STEVENS, COL.	COL. U. E. P.
HOARE, SIR H. H. A., Bart.	R. A.	SHAW, COL. F. S.
	NAPIER, H. B.	KENNEDY

RAILWAY ARRANGEMENTS AND ADVERTISEMENTS.

BATH, MARQUIS OF. K. G.	COVENTRY, EARL OF	MASON, F. F.
BLDISLOE, LORD, K.B.E.	DRUMMOND, Brig.-Gen. H. W.	

(With power to add to their number.)

SCIENCE AND ART.BATH, MARQUIS OF. K.G., *Chairman.*

ACLAND, RT. HON., F. D., M.P.	CUNDALL, H. M. (I.S.O., F.S.A.)	HOBHOUSE, RT. HON. H.
BLDISLOE, LORD, K.B.E.	DAW, J. E.	LIPSCOMB, G.
	EVANS, H. M. G.	LLEWELYN, SIR J. T. D., Bart.
	FARWELL, MAJOR E. W.	NAPIER, H. B.

(With power to add to their number.)

SELECTION.

THE CHAIRMAN OF ALL OTHER COMMITTEES.

SHOW PLACE AND DATE.

CHAIRMAN OF THE ALLOTMENT, CONTRACTS, DAIRY, FINANCE, FORESTRY,
IMPLEMENT REGULATIONS, RAILWAY ARRANGEMENTS, SCIENCE AND ART,
AND STOCK PRIZE SHEET COMMITTEES.

(With power to add two Local Members to their number.)

STOCK PRIZE SHEET.WYNFORD, LIEUT.-COL. LORD, D.S.O., *Chairman.*

ALEXANDER, H. G.	GIBBS, A. H.	MOORE-STEVENS, COL.
ALLSEBROOK, A.	HOARE, SIR H. H. A., Bart.	R. A.
BUCKINGHAM, REV. FRANK	LEWIS, COL. H.	SHAW, COL. F. S.
CHICHESTER MAJOR C. H.	MASON, F. F.	KENNEDY
EVANS, H. M. G.	MILES, LIEUT.-COL. SIR C., Bart.	SHELLY, J. F.
		SUTTON, E. P. F.
		WHITE, A. R., O.B.E.

WORKS.

Chairman.

BATH, MARQUIS OF, K.G.
BATHURST, SIR F. H., Bart. D.S.O.
BEST, CAPT. W.

MASON, F. F.
NAPIER, H. B.
STUDDY, T. E.

Stewards.

Cattle, Sheep and Pigs.
MOORE-STEVENS, COL. R. A.
MILES, LIEUT.-COL. SIR C., Bart.
SHELLEY, J. F.

Horses.
WYNFORD, LIEUT.-COL. LORD., D.S.O.
HOARE, SIR H. H. A., Bart.
ALEXANDER, H. G.

Cider.
FARWELL, MAJOR E. W.

Horticulture.
TUDWAY, C. C.

Dairy.
SOMERVILLE, A. F.
GIBBS, A. H.

Poultry.
STUDDY, T. E.

Experiments.
ACKERS, C. P.

Science and Art.
'UNDALL, H. M. (I.S.O., F.S.A.)
EVANS, H. M. G.

Finance.
NAPIER, H. B.
DAW, J. E. GIBBS, A. H.

Shoeing.
MASON, F. F.

Forage.

Yard.

Forestry.
LIPSCOMB, G.

BATH, MARQUIS OF, K.G.
BATHURST, SIR F. H., Bart.
BEST, CAPT. W.
STUDDY, T. E.

Other Honorary Officials.

Treasurer—LUTTRELL, C. M. F.

Society's Representatives on Governing Bodies and Committees.

Royal Agricultural College, Cirencester—PENBERTHY, Prof. J., F.R.C.V.S.

Dauntsey School Foundation—WHITE, A. R., O.B.E.

National Fruit and Cider Institute—NAPIER, H. B., ACKERS, C. P.

Sugar Beet Growers Society—ALEXANDER, H. G.

South Eastern Agricultural College, Wye—ASHCROFT, W.

Dairy Research Committee of University College, Reading—LATHAM, T.

Agricultural Education Committee of Wilt County Council—WHITE, A. R., O.B.E.

Permanent Officials.

Secretary and Editor—STORR, F. H., O.B.E.

Assistant Secretary—SMITH, W. A.

Auditor.

GOODMAN, F. C. (*Chartered Accountant*)

Veterinary Inspector.

PENBERTHY, Prof. J. (F.R.C.V.S.)

Consulting Chemist.

VOELCKER, DR. J. A. (M.A., F.I.C.)

Superintendent of Works.

AYRE, H. C.

Annual Exhibitions.

Year.	Place Visited.	Prizes.			Total Local Contribution.	President.	Admissions.		
		Local Subscrip- tion.	Local Com- mittee.	Local Societies.	Local Res- idents.		On 2/6 Days.	On 1/- Days.	Total.
1852	Taunton .	£ 210	£ ..	£ ..	£ ..	Lord Portman	..	..	..
1853	Plymouth .	460	..	..	..	Sir T. D. Acland, Bart.	..	..	..
1854	Bath .	450	..	..	..	William Miles, M.P.	..	..	..
1855	Tiverton .	450	..	..	..	Earl Fortescue	..	..	..
1856	Yeovil .	460	..	..	..	C. A. Moody, M.P.	..	..	..
1857	Newton Abbot	700	..	..	..	Lord Courtenay	..	..	..
1858	Cardiff .	800	..	..	..	Lord Courtenay	..	..	..
1859	Barnstaple .	800	85	..	81	John Sillifant	..	..	..
1860	Dorchester .	900	..	..	900	Lord Rivers	10,709	11,949	22,658
1861	Truro .	900	..	..	900	J. W. Buller, M.P.	15,201	14,220	29,421
1862	Wells .	900	..	..	900	Sir T. D. Acland, Bart.	10,578	4,775	15,353
1863	Exeter .	900	..	..	900	Marquis of Bath	15,635	19,284	34,919
1864	Bristol .	1000	106	..	50	Earl Fortescue	22,377	65,078	88,055
1865	Hereford .	900	358	..	1258	Lord Taunton	16,575	35,261	51,836
1866	Salisbury .	900	57	..	957	Earl of Portsmouth	7,288	18,737	26,025
1868	Falmouth .	900	..	..	900	J. Tremayne	7,502	16,702	24,204
1869	Southampton	900	132	..	1030	Sir J. T. B. Duckworth, Bart.	11,393	19,495	30,888
1870	Taunton .	900	..	..	18	Earl of Carnarvon	13,340	41,290	56,630
1871	Guildford .	900	110	..	1010	Sir S. H. Northcote, Bart., G.B., M.P.	17,952	33,653	51,605
1872	Dorchester .	800	..	..	10	Earl of Cork	10,656	23,406	34,062
1873	Plymouth .	800	..	400	1200	Duke of Marlborough, K.G.	12,791	21,517	34,308
1874	Bristol .	800	403	..	1203	Earl of Mount-Edgumbe	16,665	45,744	62,409
1875	Croydon .	800	245	..	1045	Sir Alarney Lopes, Bart., M.P.	37,329	72,791	110,120
1876	Hereford .	800	361	..	1181	R Benyon, M.P.	14,518	26,028	40,546
1877	Bath .	800	215	..	1015	Earl of Ducie	16,396	32,645	49,041
1878	Oxford .	800	..	170	976	Marquis of Lansdowne	27,625	48,852	76,477
						Earl of Jersey	12,414	26,995	39,409

ANNUAL EXHIBITIONS—continued.

Year.	Place Visited.	Local Subscription.	Prizes.			Total Local Contribution.	President.	Admissions.			
			Local Committee.	Local Societies.	Local Bazaar.			On 5/- Day.	On 2/6 Days.	On 1/- Days.	Total.
1879	Exeter . .	£ 800	£ ..	£ ..	£ 10	£ 810	Earl of Morley . .	..	14,634	40,533	55,167
1880	Worcester . .	800	..	254	..	1054	Earl of Coventry . .	..	8,415	37,675	46,090
1881	Tunbridge Wells	800	245	34	..	1079	Marquis of Abergavenny.	..	13,368	33,236	46,604
1882	Cardiff . .	800	200	198	17	1215	Lord Tredegar . .	..	23,941	38,680	62,621
1883	Bridgwater . .	800	78	..	..	878	Lord Brooke, M.P. .	..	17,171	31,241	48,412
1884	Maidstone . .	800	310	33	75	1218	Viscount Holmesdale	..	13,501	31,053	44,554
1885	Brighton . .	800	227	33	82	1142	Viscount Hampden	..	9,637	39,851	49,488
1886	Bristol . .	800	525	..	..	1325	Lord Carlisle . .	..	20,580	70,999	100,579
1887	Dorchester . .	800	..	112	..	912	Earl of Ilchester . .	..	8,860	29,846	38,706
1888	Newport (Mon.)	800	100	..	..	900	Lord Tredegar . .	..	14,878	38,567	53,445
1889	Exeter . .	800	..	..	10	810	Lord Clinton . .	..	16,405	36,195	52,600
1890	Rochester . .	900	294	..	26	1120	Earl of Darnley . .	..	3,480	48,314	51,794
1891	Bath . .	800	50	103	100	1053	Earl Temple . .	..	23,510	52,185	75,695
1892	Swansea . .	800	200	100	10	1110	Sir J. D. T. Llewelyn, Bart.	..	18,364	54,609	72,973
1893	Gloucester . .	800	400	..	..	1200	Lord Fitzhardinge . .	..	14,272	40,368	54,640
1894	Guildford . .	800	174	..	10	984	Earl of Onslow . .	..	8,671	29,813	38,484
1895	Taunton . .	800	85	160	10	1055	Viscount Portman . .	..	13,181	30,111	43,292
1896	St. Albans . .	800	152	..	..	952	Earl of Clarendon . .	..	12,056	22,380	34,436
1897	Southampton . .	800	50	..	..	850	Lord Montagu of Beaulieu	..	8,284	33,750	42,034
1898	Cardiff . .	800	200	..	..	1000	Lord Windsor . .	..	13,101	42,501	55,602
1899	Exeter . .	800	..	225	5	1030	Lord Clinton . .	..	16,091	39,832	55,923
1900	Bath . .	800	100	150	10	1060	Marquis of Bath . .	954	11,601	36,814	49,369
1901	Croydon . .	800	115	..	..	915	(H.R.H. The Duke of Cornwall)	1,196	9,362	30,693	41,251
1902	Plymouth . .	800	105	100	36	1041	Earl of Morley . .	842	12,629	40,565	54,036
1903	Bristol . .	800	434	50	61	1345	Duke of Beaufort . .	..	34,528	74,352	108,880
1904	Swansea . .	800	350	..	..	1150	Lord Windsor . .	..	28,265	50,562	78,827

ANNUAL EXHIBITIONS—continued.

Year.	Place Visited.	Local Subscription.	Prizes.			President.	Admissions.			
			Local Committee.	Local Societies.	Local Resolutions.		On 5/- Day.	On 2/6 Days.	On 1/- Days.	Total.
1903	Nottingham	£ 800	£ 218	£	£ 1018	Duke of Portland, K.G.	..	8,913	45,964	54,877
1904	Swindon	800	200	50	1050	Earl of Radnor	..	7,838	42,013	49,851
1907	Newport (Mon.)	800	201	51	1081	H.R.H. The Prince of Wales, K.G.	..	16,236	37,819	54,055
1909	Dorchester	800	100	25	925	Lord Digby	..	12,227	20,350	32,577
1909	Exeter	800	..	100	900	Lord Clinton	..	14,898	41,891	56,789
1910	Rochester and Chatham	800	117	..	917	Earl of Darnley	..	5,892	20,105	25,997
1911	Cardiff	800	195	110	1115	Marquis of Bute	..	16,213	40,588	56,801
1912	Bath	600	100	..	1000	Marquis of Bath	..	13,843	40,935	54,788
1913	Truro	800	35	115	918	Viscount Falmouth	..	12,918	44,700	57,618
1914	Swansea	800	301	..	1101	Sir J. T. D. Llewelyn, Bart	..	17,957	67,805	85,762
1915	Worcester	400	..	257	657	The Earl of Coventry	..	7,760	28,013	35,773
1916 to 1919	No Shows					The Earl of Coventry	..	4/-	2/-	
1920	Salisbury	800	24	105	131	The Earl of Radnor	..	19,392	25,255	44,647
1921	Bristol	800	1000	354	2154	The Lord Bledisloe, K.B.E.	5105	36,068	58,473	94,541
1922	Plymouth	800	132	281	1213	H.R.H. The Prince of Wales, K.G.	4124	19,289	34,835	54,124
1923	Swansea	800	295	200	1295	H.R.H. The Prince of Wales, K.G.				

Members' Privileges.

ANALYSES OF FERTILISERS, FEEDING STUFFS, WATERS, SOILS, &c.

Applicable only to the case of Persons who are not commercially engaged in the manufacture or sale of any substance sent for Analysis).

Members of the Bath and West and Southern Counties Society, who may also be Members of other Agricultural Societies, are particularly requested in applying for Analyses, to state that they do so as Members of the first-named Society.

THE following are the rates of Charges for Chemical Analyses to Members of the Society.

These privileges are applicable only when the analyses are for *bona-fide* agricultural purposes, and are required by Members of the Society for their own use and guidance in respect of farms or land in their own occupation and within the United Kingdom.

The analyses are given on the understanding that they are required for the individual and sole benefit of the Member applying for them, and must not be used for other persons, or for commercial purposes.

Land or estate agents, bailiffs, and others, when forwarding samples are required to state the names of those Members on whose behalf they apply.

Members are also allowed to send for analyses under these privileges any manures or feeding-stuffs to be used by their outgoing tenants, or which are to be given free of cost to their occupying tenants.

The analyses and reports may not be communicated to either vendor or manufacturer, except in cases of dispute.

Members are requested, when applying for an analysis, to quote the number in the subjoined schedule under which they wish it to be made.

No.		
1.	An opinion of the purity of bone-dust or oil-cake (each sample)	2s. 6d.
2.	An analysis of sulphate or muriate of ammonia, or of nitrate of soda, together with an opinion as to whether it be worth the price charged	5s.
3.	An analysis of guano, showing the proportion of moisture, organic matter, sand, phosphate of lime, alkaline salts and ammonia, together with an opinion as to whether it be worth the price charged	10s.
4.	An analysis of mineral superphosphate of lime for soluble phosphates only, together with an opinion as to whether it be worth the price charged	5s.
5.	An analysis of superphosphate of lime, dissolved bones, etc., showing the proportions of moisture, organic matter, sand, soluble and insoluble phosphates, sulphate of lime and ammonia, together with an opinion as to whether it be worth the price charged	10s.
6.	An analysis of bone-dust, basic slag, or any other ordinary artificial manure together with an opinion as to whether it be worth the price charged	10s.
7.	An analysis of compound artificial manures, animal products, refuse substances used for manure, etc.	from 10s. to £1
8.	An analysis of limestone, showing the proportion of lime	7s. 6d.
9.	An analysis of limestone, showing the proportion of lime and magnesia	10s.
10.	An analysis of limestone or marls, showing the proportion of carbonate, phosphate, and sulphate of lime and magnesia, with sand and clay	10s.
11.	Partial analysis of a soil, including determinations of clay, sand, organic matter, and carbonate of lime	£1
12.	Complete analysis of a soil	£3
13.	An analysis of oil-cake or other substance used for feeding purposes, showing the proportion of moisture, oil, mineral matter, albuminous matter, and woody fibre as well as of starch, gum, and sugar in the aggregate; and an opinion of its feeding and fattening or milk-producing properties	10s.
14.	Analysis of any vegetable product	10s.
15.	Determination of the "hardness" of a sample of water before and after boiling	5s.
16.	Analysis of water of land-drainage, and of water used for irrigation	£1
17.	Analysis of water used for domestic purposes	£1 10s.
18.	An analysis of milk (to assist Members in the management of their Dairies and Herds, <i>bona-fide</i> for their own information and not for trade purposes, nor for use in connection with the Sale of Food and Drugs Acts)	5s.
19.	Personal consultation with the Consulting Chemist. (To prevent disappointment it is suggested that Members desiring to hold a consultation with the Consulting Chemist should write to make an appointment)	5s.
20.	Consultation by letter	5s.
21.	Consultation necessitating the writing of three or more letters	10s.

Members wishing to exercise their privileges on the above-named terms, should forward their samples for examination *by post or parcel prepaid*, to the Consulting Chemist, Dr. JOHN AUGUSTUS VOELCKE, M.A., F.I.C., Stuart House, 1, Tudor Street, London, E.C.

The fees for analysis must be sent to the Consulting Chemist at the time of application.

GUIDE TO PURCHASERS OF FERTILISERS AND FEEDING STUFFS.

Purchasers are recommended in every case to insist upon having an *Invoice* given to them. This invoice should set out clearly :—

In the case of **Fertilisers**—

- (1) The **name** of the fertiliser ;
- (2) Whether the fertiliser be artificially **compounded** or not ;
- (3) The **analysis** guaranteed in respect of the principal fertilising ingredients.

In the case of **Feeding-Stuffs**—

- (1) The **name** of the article ;
- (2) The **description** of the article : whether it has been made from one substance or seed only, or from more than one ;
- (3) The **analysis** guaranteed in respect of Oil and Albuminoids.

(NOTE.—The use of terms "Linseed-cake," "Cotton-cake," etc., implies that these cakes shall be "pure" and purchasers are recommended to insist upon these terms being used without any qualification such as "95 per cent.," "as imported," etc. "Oil cake" should be avoided.

Members of the Society should see that the **Invoices** agree accurately with the orders given by them, and, in giving these orders, they should stipulate that the goods come up to the guarantees set out in the following list, and that they be sold **subject to the analysis and report of the Consulting Chemist of the Bath and West and Southern Counties Society.**

FERTILISERS.

Raw Bones, Bone-meal, or Bone-dust to be guaranteed "**PURE**," and to contain not less than 45 per cent. of Phosphate of Lime, and not less than 4 per cent. of Ammonia.

Steamed or "Degelatinised" Bones to be guaranteed "**PURE**," and to contain not less than 55 per cent. of Phosphate of Lime, and not less than 1 per cent. of Ammonia.

Mineral Superphosphate of Lime to be guaranteed to contain a certain percentage of "Soluble Phosphate." [From 25 to 28 per cent. of Soluble Phosphate is an ordinarily good quality.]

Dissolved Bones to be guaranteed to be "made from raw bone and acid only," and to be sold as containing stated percentages of Soluble Phosphate, Insoluble Phosphates, and Ammonia.

Compound Artificial Manures, Bone Manures, Bone Compounds, etc., to be sold by analysis stating the percentages of Soluble Phosphate, Insoluble Phosphates, and Ammonia contained.

Basic Slag to be guaranteed to contain a certain percentage of Phosphoric Acid, and to be sufficiently finely ground that 80 to 90 per cent. passes through a sieve having 10,000 meshes to the square inch.

Peruvian Guano to be described by that name, and to be sold by analysis stating the percentages of Phosphates and Ammonia.

Sulphate of Ammonia to be guaranteed to be "**PURE**," and to contain not less than 24 per cent. of Ammonia.

Nitrate of Soda to be guaranteed to be "**PURE**," and to contain 95 per cent. of Nitrate of Soda.

Kainit to be guaranteed to contain 23 per cent. of Sulphate of Potash.

All fertilisers to be delivered in good and suitable condition for sowing.

FEEDING-STUFFS.

Linseed Cake, Cotton Cake (Decorticated and Undecorticated), and **Rape Cake** (for feeding purposes) to be pure, i.e., prepared *only* from one kind of seed from which their name is derived, and to be in sound condition. The report of the Consulting Chemist of the Bath and West and Southern Counties Society to be conclusive as to the "purity" or otherwise of any feeding-stuffs. The percentages of Oil and Albuminoids must also be guaranteed.

Mixed Feeding Cakes, Meals, etc., to be sold on a guaranteed analysis.

All Feeding-Stuffs to be sold in sound condition, and to contain nothing of a injurious nature or worthless for feeding purposes.

INSTRUCTIONS FOR SELECTING AND SENDING SAMPLES FOR ANALYSIS.

GENERAL RULES.

1. A sample taken for analysis should be fairly *representative of the bulk* from which it has been drawn.
- 2.—The sample should reach the Analyst *in the same condition* as it was at the time when drawn.

FERTILISERS.

When **Fertilisers** are delivered in bags, select four or five of these from the bulk, and either turn them out on a floor and rapidly mix their contents, or else drive a shovel into each bag and draw out from as near the centre as possible a couple of shovelfuls of the manure, and mix these quickly on a floor.

Hulve the heap obtained in either of these ways, take one-half (rejecting the other) and mix again rapidly, flattening down with the shovel any lumps that appear. Repeat this operation until at last only some three or four pounds are left.

From this fill three tins, holding from $\frac{1}{2}$ lb. to 1lb. each, mark, fasten up and seal each of those. Send one for analysis, and retain the others for reference.

Or,—the manure may be put into glass bottles provided with well-fitting corks; the bottles should be labelled and the corks sealed down. The sample sent for analysis can be packed in a wooden box and sent by post or rail.

When manures are delivered in bulk, portions should be successively drawn from *different parts* of the bulk, the heap being turned over now and again. The portions drawn should be thoroughly mixed, sub-divided, and, finally, samples should be taken as before, except that when the manure is coarse and bulky it is advisable to send larger samples than when it is in a finely-divided condition.

FEEDING-STUFFS.

Linseed, Cotton, and other Feeding Cakes.—If a single cake be taken three strips should be broken off right across the cake and from the middle portion of it, one piece to be sent for analysis, and the other two retained for reference. Each of the three pieces should be marked, wrapped in paper, fastened up and sealed. The piece forwarded for analysis can be sent by post or rail.

A more satisfactory plan is to select four to six cakes from different parts of the delivery, then break off a piece about four inches wide from the middle of each cake, and pass these pieces through a cake-breaker. The broken cake should then be well mixed, and three samples of about 1lb. each should be taken and put in tins or bags duly marked, fastened, and sealed as before. One of

these lots should be sent for analysis, the remaining two being kept for reference. It is advisable also, with the broken pieces, to send a small strip from an unbroken cake.

Feeding Meals, Grain, etc.—Handfuls should be drawn from the centre of half-a-dozen different bags of the delivery: these lots should then be well mixed, and three $\frac{1}{2}$ lb. tins or bags filled from the heap, each being marked, fastened up, and sealed. One sample is to be forwarded for analysis and the others retained for reference.

SOILS, WATERS, &c.

Soils.—Have a wooden box made, 6 inches in length and width, and from 9 to 12 inches deep, according to the depth of soil and subsoil of the field. Mark out in the field a space of about 12 inches square; dig round in a slanting direction a trench, so as to leave undisturbed a block of soil and its subsoil 9 to 12 inches deep; trim this block to make it fit into the wooden box, invert the open box over it, press down firmly, then pass a spade under the box and lift it up gently, turn over the box, nail on the lid, and send by rail. The soil will then be received in the position in which it is found in the field.

In the case of very light, sandy, and porous soils, the wooden box may be at once inverted over the soil and forced down by pressure, and then dug out.

Waters.—Samples of water are best sent in glass-stoppered Winchester bottles holding half a gallon. One such bottle is sufficient for a single sample. Care should be taken to have these scrupulously clean. In taking a sample of water for analysis it is advisable to reject the first portion drawn or pumped, so as to obtain a sample of the water when in ordinary flow. The bottle should be rinsed out with the water that is to be analysed, and it should be filled nearly to the top. The stopper should be secured with string, or be tied over with linen or soft leather. The sample can then be sent carefully packed either in a wooden box with sawdust, etc., or in a hamper with straw.

Milk.—A pint bottle should be sent in a wooden box.

GENERAL INSTRUCTIONS.

Time for Taking Samples.—All samples, both of fertilisers and feeding-stuffs, should be taken as soon after their delivery as possible, and should reach the Analyst within *ten days* after delivery of the article. In every case it is advisable that the Analyst's certificate be received before a fertiliser is sown or a feeding-stuff is given to stock.

Procedure in the event of the Vendor wishing Fresh Samples to be Drawn.—Should a purchaser find that the Analyst's certificate shows a fertiliser or feeding-stuff not to come up to the guarantee given him, he may inform the vendor of the result and complain accordingly. He should then send to the vendor *one* of the two samples which he has kept for reference. If, however, the vendor should demand that a fresh sample be drawn, the purchaser must allow this, and also give the vendor an opportunity of being present, either in person or through a representative whom he may appoint. In that case, three samples should be taken in the presence of both parties with the same precautions as before described, *each* of which should be duly packed up, labelled and *sealed* by both parties. One of these is to be given to the vendor, one is to be sent to the Analyst, and the third is to be kept by the purchaser for reference or future analysis if necessary.

All samples intended for the Consulting Chemist of the Society should be addressed (postage or carriage prepaid) to Dr. J. AUGUSTUS VOELCKER, M.A., F.I.C., Stuart House, 1, Tudor Street, New Bridge Street, London, E.C. Separate letters of instruction should be sent at the same time.

SWANSEA MEETING,

MAY 17, 18, 19, 21 and 22, 1923.

MONEY PRIZES.

							PAGE
HORSES	..	..	..	..	£1126	15 0	cxxiii
CATTLE	..	..	..	..	1342	0 0	cxxxi
SHEEP	..	..	..	..	816	0 0	cxxxvi
GOATS	..	..	..	..	19	0 0	cxxxviii
PIGS	..	..	..	..	436	0 0	cxxxix
CIDER	..	..	..	..	50	0 0	cxlii
CHEESE	..	..	..	..	64	0 0	cxlii
CREAM CHEESE, BUTTER AND CREAM	..				53	10 0	cxlvi
BUTTER-MAKING	..	..	..	..	48	0 0	cxlvi
MILKING	..	..	..	..	14	5 0	cxlvi
SHOEING	..	..	..	..	44	10 0	cxlvi
TIMBERING AND SPLICING	..	..	..	..	14	0 0	cxlvi
POULTRY	..	..	..	..	163	10 0	cxlv
					£4,191	10 0	

DONORS OF MEDALS, PLATE, &c.

The President (H.R.H. The Prince of Wales, K.G.)
 Bath and West Society
 Shire Horse Society
 Hunters' Improvement and National Light Horse
 Breeding Society
 Major Dd. Davies, M.P.
 Welsh Pony and Cob Society.
 Shorthorn Society
 Aberdeen-Angus Cattle Society
 English Aberdeen-Angus Cattle Association.
 Argentine Aberdeen-Angus Cattle Association
 Sussex Herd Book Society
 English Kerry and Dexter Cattle Society
 English Jersey Cattle Society
 Southdown Sheep Society
 British Goat Society
 British Berkshire Society
 National Pig Breeders' Association
 Gloucestershire Old Spots Pig Society
 Wessex Saddleback Pig Society
 Poultry Club

DONORS OF MONEY PRIZES.

Bath and West and Southern Counties Society..	£3098	18	4
Swansea Local Committee	295	10	0
Shire Horse Society (or Medal)	15	0	0
Devon Cattle Breeders' Society	37	0	0
South Devon Herd Book Society	10	0	0
Shorthorn Society	30	0	0
Dairy Shorthorn Association	10	0	0
E. Ezra, Esq.	17	0	0
Hereford Herd Book Society	20	0	0
Sussex Herd Book Society	17	0	0
Red Poll Cattle Society	34	0	0
English Aberdeen-Angus Cattle Association	10	0	0
Aberdeen-Angus Breeders	10	0	0
British Friesian Cattle Society	78	6	8
Welsh Black Cattle Society	25	0	0
English Jersey Cattle Society (or Medal)	20	0	0
English Guernsey Cattle Society	30	0	0
English Kerry and Dexter Cattle Society	15	0	0
Shropshire Sheep Breeders' Association	10	0	0
Kent of Romney Marsh Sheep Breeders' Association	17	0	0
Southdown Sheep Society	17	0	0
Hampshire Down Sheep Breeders' Association	20	0	0
Oxford Down Sheep Breeders' Association	10	0	0
Dorset Horn Sheep Breeders' Association, and C. Morris, Esq.	38	0	0
Exmoor Horn Sheep Breeders' Society	17	0	0
Suffolk Sheep Society	25	0	0
Ryeland Flock Book Society	15	0	0
Kerry Hill Flock Book Society	15	15	0
Black Welsh Mountain Sheep Society	10	0	0
British Goat Society	9	10	0
British Berkshire Society	9	0	0
Large Black Pig Society	50	0	0
National Pig Breeders' Association	20	0	0
Gloucestershire Old Spots Pig Society	30	0	0
Wessex Saddleback Pig Society	24	0	0
Welsh Pig Society	20	0	0
Long White Lop-Eared Pig Society	31	10	0
Glamorgan Agricultural Committee	30	0	0
	4,191	10	0

PRIZES.

The Prizes in Classes 32 to 34, 258 and 259, £187 15s. 0d. towards the Prizes in the Horses, Cattle, Sheep and Pig Classes, and the Special Local Prizes, are contributed by or through the Swansea Local Committee.

An Animal can be entered in as many Classes as it is eligible for on payment of an additional fee in each Class. No additional fee is, however, payable in the case of those Prizes headed as Champion or Special Prizes.

HORSES.

Exhibitors are requested to note that Animals entered in Classes 1 to 9 must be in the Yard before 8 a.m. on Thursday, May 17 and except the Stallions in Class 5 (which can be removed after the Parade of Horses on the third day of the Show) must remain in the Yard till 6 o'clock on Tuesday, May 22.

SHIRE.

(Registered or eligible for registration in the Shire Horse Society's Stud Book).

Entry Fees, including Box : Members, 30/- ;
Non-Members, 60/- each entry.

Judge—H. W. BISHOP, Pendley Stock Farms, Tring, Herts.						First Prize.	Second Prize.	Third Prize.
CLASS.						£	£	£
1.—MARE, in-foal, or with foal at foot .. .. .	..	..	..	..	..	15	10	3
2.—FILLY or GELDING, foaled in 1922 .. .. .	..	..	..	..	..	10	5	3
3.—FILLY or GELDING, foaled in 1921 .. .. .	..	..	..	..	..	10	5	3
4.—FILLY or GELDING, foaled in 1920 .. .. .	..	..	..	..	..	10	5	3
5.—STALLION, foaled in 1921 .. .. .	..	..	..	..	..	10	5	3
6.—COLT, foaled in 1922 .. .. .	..	..	..	..	..	10	5	3

MEDAL. (A)

Offered by the Shire Horse Society.

(A) A Gold Medal, or the sum of £10, for the best Mare or Filly in the Shire Horse Classes, under Condition 47, and to the Breeder of the winner under the Condition stated, a prize of 10
5

SHIRE—continued.**SPECIAL LOCAL PRIZES.**

Open only to Residents in the Counties of Brecon, Cardigan, Radnor, Glamorgan, Pembroke and Carmarthen, the winners of the First Prizes in the Open Classes not being eligible to compete.

	First Prize £	Second Prize £	Third Prize £
(B) Best Local Exhibit in Class 1	5		
(C) Best Local Exhibit in Classes 2, 3 or 4	5		
(D) Best Local Exhibit in Classes 5 or 6	5		

CLASSES 7, 8 and 9 CANCELLED.

HUNTERS.

Entry Fees, including Box : Members, 30/- ;
Non-Members, 60/- each entry.

Judge—Captain Lord STALBRIDGE, M.F.H., Motcombe
House, Shaftesbury, Dorset.

Animals entered in Classes 10 to 20 must be in the Yard before 8 a m
on Thursday, May 17, and must remain there till 1 p m on Saturday,
May 19th, when they must be removed from the Yard

CLASS.

10.—MARE, in-Foal, or with Foal at Foot	15	10	3
11.—FILLY, COLT or GELDING, foaled in 1922	10	5	3
12.—FILLY, COLT or GELDING, foaled in 1921	10	5	3
13.—FILLY or GELDING, foaled in 1920	10	5	3
14.—MARE or GELDING, foaled before 1920, that has not won a prize of £10 or over under saddle at any Show held previous to March 24th, 1923, to carry under 14 stone	10	5	3
15.—MARE or GELDING, foaled before 1920, that has not won a Prize of £10 or over under Saddle at any Show held previous to March 24th, 1923, to carry 14 stone and over	10	5	3
16.—MARE or GELDING, foaled in 1919, to carry 14 stone and over	10	5	3
17.—MARE or GELDING, foaled in 1919, to carry under 14 stone	10	5	3
18.—MARE or GELDING, foaled before 1920, to carry under 14 stone	20	10	3
19.—MARE or GELDING, foaled before 1920 to carry 14 stone or over	20	10	3
20.—Selling Class—MARE or GELDING, three years old or over	10	5	3

(Any Animal entered in Class 20 may be claimed for 100 guineas. Claims must be deposited in writing at the Secretary's Office in the Show Yard not later than 6 p.m. on the day of Judging, and if there be more than one claim for any horse the horse will be put up for sale by an auctioneer appointed by the Society and any surplus received over the amount stated shall be equally divided between the exhibitor and the Society.)

Prizes for Horses for 1923.

CXXV

HUNTERS—continued.

First Prize.	Second Prize.	Third Prize.
£	£	£

SPECIAL LOCAL PRIZES.

Open only to Residents in the Counties of Brecon, Cardigan, Radnor, Glamorgan, Pembroke and Carmarthen, the winners of First Prizes in the Open Classes not being eligible to compete.

(E) Best Local Exhibit in Class 10	5
(F) Best Local Exhibit in Classes 11, 12 and 13 ..	5
(G) Best Local Exhibit in Classes 14 to 20	Silver Cup.

The Silver Cup is presented by Major Dd. Davies, M.P., Llandinam, under the following Conditions:—

The Cup to be won three times before becoming the property of the holder. The winner in this Class will be required to find two guarantors approved by the Committee of the Swansea Horse Show Society for the safe return of the Cup to the Secretary before July 1st, 1924, for competition at the next Show.

MEDALS.

Offered by the Hunters' Improvement and National Light Horse Breeding Society, under Conditions 48 and 49.

- (E) A Gold Medal, or £5 and a Bronze Medal, for the Best Hunter Brood Mare in Class 10, registered with a number in the Hunter Stud Book, at the time of entry or within a month of the award, not having previously won the above-named Society's Gold Medal as a Brood Mare in 1923, and which must have her foal at foot, or produce a living foal in 1923 to a thoroughbred horse or Registered Hunter sire. In the second instance a certificate to that effect must be forwarded before the Medal is sent.
- (I) A Silver Medal or £1 (at the option of the winner), for the best Hunter Mare or Gelding of any age, exhibited by a member of the Hunters' Improvement and National Light Horse Breeding Society, in Classes 14 to 20, whose subscription to that Society must be paid within a month of the award.

Only Prize-Winners in the Classes will be eligible for these Medals.

COBS AND PONIES.

Animals entered in Classes 21 to 31 must be brought into the Yard after

6 p.m. on Saturday, May 19th, and before 8 a.m. on Monday, May 21st, and must remain in the Yard until 6 p.m. on Tuesday, May 22nd.

WELSH COBS,

Entry Fee : 10/- each entry.

Judge—T. H. VAUGHAN, Caerffynon, Llanerfyl, Welshpool.

CLASS.

21.—MARE, in-Foal, or with Foal at Foot	5	3	2
22.—BARREN MARE or GELDING, any height, to be shown in hand	8	5	2
23.—STALLION, exceeding 14.2 hands	10	5	3
24.—STALLION, not exceeding 14.2 hands	10	5	3

WELSH MOUNTAIN PONIES.**Entry Fee : 10/- each entry.****Judge—T. H. VAUGHAN, Caerffynon, Llanerfyl,
Welshpool.**

	First Prize. £	Second Prize. £	Third Prize £
CLASS.			
25.— BROOD MARE , foaled in or before 1910, not exceeding 12.2 hands, neither docked nor hogged, in-foal or with foal at foot, and must produce a foal in 1923 before receiving a prize	10	5	3
26.— BARREN MARE or GELDING , not exceeding 12.2 hands, to be shown in hand	5	3	2
27.— STALLION , foaled in or before 1919 not exceeding 12.2 hands and neither docked nor hogged ..	10	5	3
28.— FILLY or COLT , foaled in 1920, not exceeding 11.3 hands, or in 1921, not exceeding 11.2 hands ..	6	4	2
29.— FILLY or COLT , foaled in 1922.. .. .	5	3	2

SPECIAL PRIZES.

Offered by the Welsh Pony and Cob Society under the Conditions stated.

- (J) **A Silver Medal and Illustrated Certificate for the best Stallion, Mare, Filly or Filly foal in Classes 21 to 24.**
 (K) **A Silver Medal and Illustrated Certificate for the best Stallion, Mare, Filly or Filly foal in Classes 25 to 29.**

No animal to be eligible to take more than one Silver Medal and Certificate during any one year. If not already registered in the Stud Book, the entry of the winner must be duly lodged with the Secretary of the Welsh Pony and Cob Society within 14 days from time of winning and the owner must be a member of the Society who has paid his subscriptions for the current year, or has submitted his name for membership and paid one annual subscription within 14 days of the award. Any Medal Winner must either hold the Annual Certificate of the Ministry of Agriculture for soundness or a certificate that the winner is free from hereditary disease, signed by the Local Society's appointed Veterinary Surgeon and lodged with the Secretary of the Welsh Pony and Cob Society within 14 days after the date of Show.

**MOUNTAIN AND MOORLAND PONIES (other than
Welsh Mountain).****Entry Fee : 10/- each entry.****Judge—E. P. NORTHEY, Higher Bowden, Okehampton,
Devon.**

30.— MARE , not exceeding 13 hands, in-foal or with foal at foot	10	5	3
31.— STALLION , not exceeding 13 hands	10	5	3

ANY AGRICULTURAL BREED.

Entry Fee : 10/- each entry.

Animals entered in Class 32 must be in the Yard by 8 a.m. on Saturday, May 19th, and can leave after they have been judged and paraded.

Judge—R. T. BROAD, Home Farm, Merthyr Mawr, Bridgend.

CLASS	First Prize. £	Second Prize. £	Third Prize. £
32.—Mare or Gelding, foaled before 1921, suitable for general work and the property of a resident within 20 miles of Swansea, to be shown in hand, without gear	5	2	1

COLLIERY.

Entry Fee : 10/- each entry.

Animals entered in Classes 33 and 34 must be in the Yard by 8 a.m. on Monday, May 21st, and can leave after they have been judged and paraded.

Judge—H. H. PHILLIPS, 25, Brynymor Crescent, Swansea.

33.—Mare or Gelding, over 14.2 and not over 15.1 hands, that has been worked underground in a colliery for at least three months previous to May 1, 1923	7	5	3
		Fourth, £1	
34.—Mare or Gelding, not exceeding 14.2 hands, ditto, ditto	7	5	3
		Fourth, £1	

SPECIAL PRIZES.

For Hauliers in charge of animals entered in Classes 33 and 34, who shall turn out the best conditioned horses and the general turnout of which shall be neatest and best, the Horses being paraded in gear after the Classes have been judged

1 10s. 5s.

SADDLE.

ENTRIES CLOSE.

With Boxes—March 24, or at double fees, March 31.

Without Boxes—At 12 noon on the day preceding the competition.

Entry Fees : With Box, Members, 30/- ; Non-Members, 60/- each entry ; Without Box : Members, 5/- ; Non-Members, 10/-.

Judge—Captain Lord STALBRIDGE, M.F.H., Motcombe House, Shaftesbury, Dorset.

Horses entered in other Classes can, if eligible, be also entered on payment of an additional fee in the Saddle Classes.

Horses entered in the Saddle Classes only, and not having a Box in the yard, must be in the Show Yard by 1 p.m. on the day on which they compete, and, with the consent of the Stewards, may leave the Yard as soon as the class has been judged.

35.—MARE or GELDING, any height, for riding purposes, to be ridden on the 2nd day of the Show	10	5	2
---	----	---	---

SADDLE—continued.

CLASS.	First Prize. £	Second Prize. £	Third Prize. £
36.—PONY, not over 12.2 hands, suitable for and to be ridden by a child not over 13 years of age, on the 3rd day of the Show	5	4	2
		Fourth	£1
(A Whip will be presented to the best Boy and best Girl Riders in this Class.)			
37.—PONY, not over 14 hands, suitable for and to be ridden by a child not over 15 years of age, on the 4th day of the Show	5	4	2
		Fourth	£1
(A Whip will be presented to the best Boy and best Girl Riders in this Class.)			
38.—Weight-carrying COB, not over 15 hands, to carry not less than 14 stone, to be ridden on the 3rd day of the Show	10	5	2
39.—MARE or GELDING, not over 14.2 hands, to be ridden on the 4th day of the Show	10	5	2
40.—MARE or GELDING, over 13.2 and not over 15 hands, made or unmade, to be ridden on the 5th day of the Show	10	5	2

HARNESS.

ENTRIES CLOSE.

With Boxes—March 24, or at double fees, March 31.

Without Boxes—At 12 noon on the day preceding the competition.

Entry Fees: With Box, Members, 30/-; Non-Members, 60/- each entry; Without Box: Members, 5/-; Non-Members, 10/-.

Judge—A. W. HICKLING, Wing Old Hall, Rutland.

Horses entered in other Classes can, if eligible, be also entered on payment of an additional fee in the Harness Classes

Horses entered in the Harness Classes only, and not having a Box in the yard, must be in the Show Yard by 1 p.m. on the day on which they compete, and, with the consent of the Stewards, may leave the Yard as soon as the class has been judged.

41.—(Novice Class). MARE or GELDING, over 14 hands, that has not previously won a prize of £10 or over, to be driven on the 1st day of the Show ..	7	4	2
42.—(Ditto). MARE or GELDING, not over 14 hands, ditto, ditto	7	4	2
43.—MARE or GELDING, 13.2 and under 14.2, to be driven on the 2nd day of the Show	15	8	4
44.—MARE or GELDING, 14.2 hands or over, to be driven on the 2nd day of the Show	15	8	4
45.—TANDEMS, MARES or GELDINGS, to be driven on the 3rd day of the Show	20	10	
46.—PAIRS, MARES or GELDINGS, to be driven on the 3rd day of the Show	20	10	
47.—MARE or GELDING, not over 13.2 hands, to be driven on the 4th day of the Show	15	8	4

Prizes for Horses for 1923.

CXXIX

HARNESS—continued.

CLASS.

48.—Mare or Gelding, 14.3 hands or over, the property of a Tradesman carrying on business within the Borough of Swansea, used solely by him and driven regularly by himself or his servants, for the delivery of goods sold by him, for a period of not less than three months prior to May 17th, 1923, to be exhibited on the 4th day of the Show in Wagon, Trolley, or Cart (not Dog Cart) ..

49.—Mare or Gelding, under 14.3 hands, ditto, ditto ..

50.—STALLION, MARE or GELDING, not over 12.2 hands, to be driven on the 5th day of the Show

First Prize.	Second Prize.	Third Prize.
£	£	£

4	3	2
4th, £1	5th, 10/-	
4	3	2
4th, £1	5th, 10/-	
5	4	2
	Fourth, £1	

CHAMPION PRIZE.

For the best MARE or GELDING, shown in any of the Novice or Open Harness Classes, to be driven in Single Harness on the 5th day of the Show 20

JUMPING.

(UNDER SHOW JUMPING ASSOCIATION RULES).

ENTRIES CLOSE.

With Boxes—March 24, or at double fees, March 31.

Without Boxes—At 12 noon on the day preceding the competition.

Entry Fees : With Box, Members, 30/- ; Non-Members, 60/- each entry ; Without Box : Members, 5/- ; Non-Members, 10/-.

The Society reserves the right to cancel the Classes for Jumping in the event of sufficient entries not being forthcoming. In such case notice will be given to Exhibitors and any Entry Fee paid will be returned.

(For Regulations as to Jumping Classes see Conditions 50).

Judge—Lieut.-Col. LORD WYNFORD, D.S.O., Wynford House, Maiden Newton, Dorset.

Horses can be entered in as many Jumping Classes as they are eligible for on payment of the entry fee for each Class, and can take Second or Third Prize in each Class, but only one First Prize on the first three days of the Show. In the event of an animal which has already won a First Prize in the aforesaid Classes being again placed first, the Animal next in point of merit will, if eligible, succeed to the First Prize, and the Stewards reserve the right to amend the Awards correspondingly, and, if necessary, to proportionately reduce the amounts paid to the other Prize Winners in the Class. The award to two or more exhibits of an equal First will not debar such Animals from taking a First Prize in a later class.

Horses entered in the Jumping Classes only, and not having a box in the Yard, must be in the Show Yard by 1 p.m. on the day on which they compete and, with the consent of the Stewards, may leave the Yard as soon as the Class has been judged.

51.—MARE or GELDING, any height, that shall jump over the course in the best form on the last day of the Show

10	5	2
----	---	---

JUMPING—continued.		First Prize. £	Second Prize. £	Third Prize. £
CLASS.				
52.—MARE or GELDING, under 14.2 hands, ditto, 1st day ..		10	5	2
53.—MARE or GELDING, 15 hands and over, that shall jump over the course in the best form on the 2nd day of the Show	10	5	2	
54.—MARE or GELDING, under 15 hands, ditto, 2nd day..	10	5	2	
55.—MARE or GELDING, any height, that shall jump highest on the 3rd day of the Show	10	5	2	
56.—MARE or GELDING, any height, that shall jump over the course in the best form on the 3rd day of the Show	10	5	2	
57.—MARE or GELDING, 14.3 hands and over, that shall jump over the course in the best form on the 4th day of the Show	15	7	3	
58.—MARE or Gelding, under 14.3 hands, ditto, 4th day..	15	7	3	
59.—MARE or GELDING, any height, that shall jump highest on the 5th day of the Show	15	7	3	
CHAMPION CLASS.				
60.—MARE or GELDING, any height, having won a Prize in Classes 51 to 59 that shall jump over the course in the best form on the 5th day of the Show ..	20	10	5	
(In this Class the whole of the Jumps will be raised at the discretion of the Stewards).				

First Prize. £	Second Prize. £	Third Prize. £
----------------------	-----------------------	----------------------

CATTLE.

Entry Fees: Members, 20/-; Non-Members, 40/-,
each entry.

DEVON.

Judge—R. COOK, Crazelowman, Tiverton.

The Prizes in Class 61 and the First Prize in Class 62 are contributed by
the Devon Cattle Breeders' Society.

CLASS.

61.—Cow or Heifer, in-Milk, to be Milked in the Ring before judging, under Conditions No. 59	10	5	2
62.—Cow or HEIFER, in-Milk, calved in or before 1920 ..	10	5	2
63.—HEIFER, calved in 1921	10	5	2
64.—HEIFER, calved in 1922	10	5	2
65.—BULL, calved in or before 1921	10	5	2
66.—BULL, calved in 1922	10	5	2

CHAMPION PRIZE.

Offered by the Devon Cattle Breeders' Society.

Best Animal exhibited in Classes 61 to 66	10
---	----

SOUTH DEVON.

Judge—J. COAKER, Wear, Bishopsteignton,
Teignmouth.

The First Prize in Class 67 is contributed by the South Devon Herd Book
Society.

67.—Cow or HEIFER, in-Milk, calved in or before 1920 ..	10	5	2
68.—HEIFER, calved in 1921	10	5	2
69.—HEIFER, calved in 1922	10	5	2
70.—BULL, calved in or before 1921	10	5	2
71.—BULL, calved in 1922	10	5	2

CHALLENGE CUP.

Offered by the President (H.R.H. The Prince of Wales, K.G.).

A Silver Challenge Cup for the best Cow in-Milk in the South Devon
Classes, to be won three times in succession or four times
altogether before becoming the property of the Winner.

SHORTHORN.

Judge—J. D. KEY, Clifton Mill, Rugby.

72.—Cow, in-Milk, calved before 1920	10	5	2
73.—HEIFER, in-Milk, calved in 1920	10	5	2
74.—HEIFER, calved in 1921	10	5	2
75.—HEIFER, calved in 1922	10	5	2
76.—BULL, calved in 1919 or 1920	10	5	2
77.—BULL, calved in 1921	10	5	2
78.—BULL, calved in 1922	10	5	2

CHAMPION PRIZE.

Offered by the Shorthorn Society.

Best Bull in Classes 76 to 78 entered in, or eligible for entry in Coates's Herd Book, with Silver Medal to the Breeder	10
---	----

First Prize.	Second Prize.	Third Prize.
£	£	£

DAIRY SHORTHORN.

Judge—W. H. HITCH, Elkstone Manor, Colesbourne S.O., Glos.

The First Prizes in Classes 79 and 80 (and a Silver Medal to the Breeder of the winners) are offered by the Shorthorn Society in conjunction with the Dairy Shorthorn Association, and the First Prize in Class 83 by the Dairy Shorthorn Association.

CLASS.

79.—Pedigree Cow, in-Milk, calved in or before 1919, eligible for, and entered in Coates's Herd Book, or pedigree sent for such entry previous to the Show, and not having previously won a similar prize offered by the above-named Society or Association in 1923, to be milked in the Ring before judging, under Conditions 59	10	5	2
80.—Ditto, calved in or after 1920, ditto, ditto	10	5	2
The Prizes in Class 81 are offered by E. Ezra, Esq., of Lock, Partridge Green, Sussex.			
81.—Pedigree Heifer, calved in 1922, eligible for and entered in Coates's Herd Book or pedigree sent for such entry previous to the Show, subject to Conditions No. 60	10	5	2
82.—Pedigree Bull, calved before 1922	10	5	2
83.—Pedigree Bull, calved in 1922, entered or pedigree accepted for entry in Coates's Herd Book, subject to Conditions No. 62	10	5	2

HEREFORD.

Judge—C. H. MORRIS, Weston Court, Pembridge.

84.—Cow, in-Milk, calved before 1920	10	5	2
85.—HEIFER, in-Milk, calved in 1920	10	5	2
86.—HEIFER, calved in 1921	10	5	2
87.—HEIFER, calved in 1922	10	5	2
88.—BULL, calved in 1919 or 1920	10	5	2
89.—BULL, calved in 1921	10	5	2
90.—BULL, calved in 1922	10	5	2

CHAMPION PRIZES.

Offered by the Hereford Herd Book Society.

Best registered Cow or Heifer in Classes 84 to 87	10
Best registered Bull in Classes 88 to 90	10

SUSSEX.

Judge—H. B. Amos, Ripton, Ashford, Kent.

The Prizes in Class 91 and the Silver Medals are offered by the Sussex Herd Book Society.

91.—Cow or Heifer, in-Milk, calved in or before 1920	10	5	2
92.—HEIFER, calved in 1921 or 1922	10	5	2
93.—BULL, calved in 1920, 1921 or 1922	10	5	2

SILVER MEDALS.

Best Cow or Heifer in Class 91 or 92.
Best Bull in Class 93.

RED POLL.

**Judge—J. P. MILNE, Lee Lane Farm, Wendlesham,
Camberley, Surrey.**

**£34 towards the Prizes in Classes 94 to 98 are contributed by the Red
Poll Cattle Society.**

CLASS.

	First Prize. £	Second Prize £	Third Prize. £
94.—COW or HEIFER, in-milk, calved before 1921 ..	10	5	2
95.—HEIFER, calved in 1921	10	5	2
96.—HEIFER, calved in 1922	10	5	2
97.—BULL, calved in or before 1921	10	5	2
98.—BULL, calved in 1922	10	5	2

ABERDEEN-ANGUS.

**Judge—J. ROBB, Estate Office, Conholt Park,
Andover.**

**£20 towards the Prizes in Classes 99 to 103 are contributed by the English
Aberdeen-Angus Cattle Association and Aberdeen-Angus Breeders.**

99.—COW or HEIFER, in-Milk, calved before 1st Decem- ber, 1920	10	5	2
100.—HEIFER, calved on or after 1st December, 1920 ..	10	5	2
101.—HEIFER, calved on or after 1st December, 1921 ..	10	5	2
102.—BULL, calved before 1st December, 1921	10	5	2
103.—BULL, calved on or after 1st December, 1921 ..	10	5	2

CHAMPION PRIZES.

Offered by the Aberdeen-Angus Cattle Society.

A Silver Medal for the best Animal in Classes 99 to 103.

Offered by the English Aberdeen-Angus Cattle Association.

A Silver Medal for the best animal of opposite sex.

Offered by the Argentine Aberdeen-Angus Association.

**A Silver Medal for the best Animal in Classes 99 to 103 bred by the
Exhibitor.**

BRITISH FRIESIAN.

Judge—R. WALLACE, Mardley Bury, Knebworth, Herts.

**£28 8s. 8d. towards the Prizes in Classes 104 to 108 are contributed by the
British Friesian Cattle Society, and animals entered must be
registered in the B.F.S. Herd Book proper, those registered in the
Supplementary Section not being eligible.**

104.—COW or HEIFER, any age, in-Milk	10	5	2
105.—HEIFER, not in-Milk, calved in 1921	10	5	2
106.—HEIFER, calved in 1922	10	5	2
107.—BULL, calved in or before 1921	10	5	2
108.—BULL, calved in 1922	10	5	2

WELSH BLACK.

Judge—W. JONES, Plasbryn, Llanbedr, Merionethshire.

**£25 of the Prizes in Classes 109 to 113 are contributed by or through the
Welsh Black Cattle Society and animals must be registered or eligible
for registration in the Welsh Black Cattle Herd Book.**

109.—COW or HEIFER, in-Milk, calved on or before November 30th, 1920	10	5	2
110 HEIFER, calved on or between December 1st, 1920, and November 30th, 1921	10	5	2

Prizes for Cattle for 1923.

CLASS.	WELSH BLACK— <i>continued.</i>	First Prize. £	Second Prize. £	Third Prize. £
111.—	HEIFER, calved on or between December 1st, 1921, and November 30th, 1922	10	5	2
112.—	BULL, calved on or before November 30th, 1921 ..	10	5	2
113.—	BULL, calved on or between December 1st, 1921, and November 30th, 1922	10	5	2

JERSEY.

Judges—

Cows and Heifers—**H. PADWICK**, Red House, Ashling, Chichester.

Bulls—**Col. L. G. GISBORNE**, Lingen Hall, Brampton Bryan, Herefordshire.

The Prizes in Class 114 are offered by the English Jersey Cattle Society.

114.—	Cow or Heifer, in-Milk, entered in or eligible for entry in the English Jersey Herd Book, sired in Great Britain or Ireland	5	3	2
115.—	Cow, in-Milk, calved before 1920	10	5	2
116.—	Cow or HEIFER, in-Milk, calved in 1920	10	5	2
117.—	HEIFER, in-Milk, calved in or since 1921	10	5	2
118.—	BULL, calved before 1921	10	5	2
119.—	BULL, calved in 1921	10	5	2
120.—	BULL, calved in 1922	10	5	2

GUERNSEY.

Judge—**G. T. BARHAM**, Sudbury Park, Wembley, Middlesex.

£20 towards the Prizes in the Guernsey Classes are contributed by the English Guernsey Cattle Society.

121.—	Cow in-Milk, calved before 1920	10	5	2
122.—	HEIFER, in-Milk, calved in 1920	10	5	2
123.—	HEIFER, calved in 1921	10	5	2
124.—	HEIFER, calved in 1922	10	5	2
125.—	BULL, calved in 1919 or 1920	10	5	2
126.—	BULL, calved in 1921	10	5	2
127.—	BULL, calved in 1922	10	5	2

DEXTER.

Judge—**E. P. F. SUTTON**, Sidmouth Grange, Earley, Berks.

128.—	Cow or HEIFER, in-Milk, calved in or before 1920 ..	10	5	2
129.—	HEIFER, calved in 1921 or 1922	10	5	2
130.—	BULL, calved in 1920, 1921 or 1922	10	5	2

The Prizes in Class 131 are offered by the English Kerry and Dexter Cattle Society.

131.—	Bull, calved in 1922, whose sire and dam are entered in the English Kerry and Dexter or Royal Dublin Society's Herd Book	10	3	2
-------	--	----	---	---

SPECIAL PRIZE.

Offered by the English Kerry and Dexter Cattle Society.

The Devonshire Challenge Cup, for the Best Animal in Classes 128 to 131, bred by Exhibitor, and entered in or eligible for the English Kerry and Dexter Herd Book. The Cup to be won by the same Exhibitor with different animals three years in succession before becoming his absolute property.

The Certificate of Award of the English Kerry and Dexter Cattle Society will be given to the owner of the winning animal on each occasion the Cup is competed for.

MILK TEST.

(See Regulation 62).

Judge—A. F. SOMERVILLE, Dinder House, Wells, Somt.

Animals entered in the Breed Classes can, if eligible, be entered also, on payment of an additional fee of 10/- for Members and 20/- for Non-Members, in Classes 132 to 135.

CLASS.

	First Prize. £	Second Prize. £	Third Prize. £
132.—Cow, in-Milk, of any breed or cross, under 950lbs. live weight, yielding the largest quantity of milk, of normal character, containing at each time of milking not less than 3 per cent. fat, the period of lactation being taken into consideration ..	10	5	2
133.—Cow, in-Milk, of any breed or cross, 950lbs. live weight or over, ditto, ditto	10	5	2

SPECIAL PRIZE.

Offered by the British Friesian Cattle Society to the owner of the Cow awarded the greatest number of points in Classes 132 and 133, provided that such Cow is a British Friesian. 50

BUTTER TEST.

(See Regulation 62.)

Judge—A. F. SOMERVILLE, Dinder House, Wells, Somt.

The Prizes in Class 134 are offered by the English Jersey Cattle Society, and in Class 135 by the English Guernsey Cattle Society, and entries in them are subject to any conditions issued by these Societies previous to the tests.

	Gold Medal or 10	Silver Medal.	Bronze Medal
134.—Cow, eligible for or entered in the English Jersey Herd Book, obtaining the greatest number of points by the practical test of the separator and churn, judged by the scale of points adopted by the English Jersey Cattle Society	10		

Certificates of Merit will also be awarded to Cows under 5 years old obtaining 30 points, and to Cows 5 years old or over obtaining 35 points.

135.—Cow, eligible for or entered in the English Guernsey Herd Book, obtaining the greatest number of points by the practical test of the separator and churn, judged by the scale of points adopted by the English Guernsey Cattle Society	5	3	2
---	---	---	---

First Prize.	Second Prize.	Third Prize.
£	£	£

SHEEP.

Entry Fees : Members, 20/- ; Non-Members, 40/- each entry.

SHROPSHIRE.

Judge—E. C. TANNER, Eyton-on-Severn, Shrewsbury.

The First Prize in Class 136 is offered by the Shropshire Sheep Breeders' Association.

CLASS

136.—Two Shear RAM	10	5	2
137.—Shearling RAM	10	5	2
138.—Pair of RAM LAMBS, dropped in 1923	10	5	2
139.—Pen of three Shearling EWES	10	5	2

DEVON LONGWOOLLED.

Judge—C. L. HANCOCK, The Manor House, Cothelstone, Taunton.

140.—Shearling RAM	10	5	2
141.—Pen of three Shearling EWES	10	5	2

SOUTH DEVON.

Judge—A. E. STIDSTONE, Court, Thurlestone, Kingsbridge.

142.—Shearling RAM	10	5	2
143.—Pen of three Shearling EWES	10	5	2

KENT OR ROMNEY MARSH, -

Judge—H. RIGDEN, Etchinghill, Shorncliffe.

The Prizes in Class 144 are offered by the Kent or Romney Marsh Sheep Breeders' Association.

144.—Two Shear Ram	10	5	2
145.—Shearling RAM	10	5	2
146.—Pair of RAM LAMBS, dropped in 1923	10	5	2
147.—Pen of three Shearling EWES	10	5	2

SOUTHDOWN.

Judge—H. PAYNTER, Broadreed, Emsworth, Hants.

The Prizes in Class 148 are offered by the Southdown Sheep Society.

148.—Two Shear Ram	10	5	2
149.—Shearling RAM	10	5	2
150.—Pen of three Shearling EWES	10	5	2

SPECIAL PRIZE.

Offered by the Southdown Sheep Society, under Condition 65, subject to there being at least three competitors.

Silver Medal or £1 for the best Ram in Classes 148 and 149.

HAMPSHIRE DOWN.

Judge—G. C. WATERS, Burcombe Manor, near Salisbury.

The Prizes in Class 152 and the Champion Prize are offered by the Hampshire Down Sheep Breeders' Association.

151.—Shearling RAM	10	5	2
152.—Ram Lamb, dropped in 1923	7	5	3

HAMPSHIRE DOWN.—*continued.*

CLASS	First Prize.	Second Prize.	Third Prize.
	£	£	£
153.—Pair of RAM LAMBS, dropped in 1923	10	5	2
154.—Pen of three Shearling EWES	10	5	2
CHAMPION PRIZE.			
Best Pen of Lambs in Classes 152 and 153	5		
(Single Ram Lamb to constitute a Pen).			

OXFORD DOWN.

Judge—W. H. HITCH, Elkston Manor, Colesbourne S.O., Glos.

155.—Shearling RAM	10	5	2
156.—Pair of RAM LAMBS, dropped in 1923	10	5	2
157.—Pen of three Shearling EWES	10	5	2
The Prizes in Class 158 are offered by the Oxford Down Sheep Breeders' Association, and will be withheld until the Animals awarded the Prizes are registered in the Flock Book.			
158.—Pair of Ewe Lambs, dropped in 1923	6	3	1

DORSET HORN.

Judge—J. C. DAVY, Yondover, Beaminster, Dorset.

(The Animals entered in Classes 159 and 161 must have been shorn bare in the year of the Show.)

159.—Shearling RAM	10	5	2
160.—Pair of RAM LAMBS, dropped after November 1st, 1922	10	5	2
161.—Pen of three Shearling EWES	10	5	2
The Prizes in Class 162 are offered by the Dorset Horn Sheep Breeders' Association, and in Class 163 by C. MORRIS, Esq., and the Association.			
162.—Pen of three Ewe Lambs, dropped after November 1st, 1922	10	5	2
163.—Pen of three Ewe Lambs, dropped after November 1st, 1922, the property of a member of the Dorset Horn Sheep Breeders' Association, who has not won a prize at the Royal, Bath and West or Royal Counties Show during the last four years ..	12	6	3

EXMOOR HORN.

Judge—W. G. THORNE, Higher House, Twitchen, South Molton.

The Prizes in Class 164 are offered by the Exmoor Horn Sheep Breeders' Society.

164.—RAM, 2 Shear and upwards	10	5	2
165.—Shearling RAM	10	5	2
166.—Pen of three Shearling EWES	10	5	2

SUFFOLK.

Judge—G. A. GOODCHILD, Oak House, Great Yeldham, Essex.

£25 towards the Prizes in Classes 167 to 170 are contributed by the Suffolk Sheep Society.

167.—RAM, 2 Shear and upwards	10	5	2
168.—Shearling RAM	10	5	2
169.—Pair of RAM LAMBS, dropped in 1923	10	5	2
170.—Pen of three EWE LAMBS, dropped in 1923 ..	10	5	2

First Prize. £	Second Prize. £	Third Prize. £
----------------------	-----------------------	----------------------

RYELAND.

Judge—E. EDMUNDS, Pontygyndy Road, Caerphilly.

£15 of the Prizes in Classes 171 to 174 are offered by the Ryeland Sheep Society.

CLASS.

171.—RAM, 2 Shear and upwards	10	5	2
172.—Shearling RAM	10	5	2
173.—Pair of RAM LAMBS, dropped in 1923	10	5	2
174.—Pen of three Shearling EWES	10	5	2

WELSH MOUNTAIN.

Judge—H. ELLIS, Tairmiebion, Bangor, North Wales.

175.—RAM, 2 Shear and upwards	10	5	2
176.—Shearling RAM	10	5	2
177.—Pen of three Shearling EWES	10	5	2
178.—Pen of three EWE LAMBS, dropped in 1923	10	5	2

KERRY HILL.

Judge—C. S. WILLIAMS, Mellington Farm, Churchstoke, Mont.

£15 15s. towards the Prizes in Classes 179 to 181 are contributed by the Kerry Hill (Wales) Flock Book Society, and animals must be shown uncoloured; the names and Flock Book Number of Rams must be given and in Class 181 the Ewes must be bred from one Flock and the Breeder's name must be given.

179.—RAM, 2 Shear and upwards	10	5	2
180.—Shearling RAM	10	5	2
181.—Pen of three Shearling EWES	10	5	2

BLACK WELSH MOUNTAIN.

Judge—H. ELLIS, Tairmiebion, Bangor, North Wales.

£10 towards the Prizes in Classes 182 and 183 are contributed by the Black Welsh Mountain Sheep Breeders' Association.

182.—Shearling RAM	10	5	2
183.—Pen of three Shearling EWES	10	5	2

GOATS.

(For Regulations see Entry Forms).

Entry Fees : Members, 7/6 ; Non-Members 10/- each entry.

Judge—S. WOODIWISS, Graveleys, Great Waltham, Essex.

£9 10s. Od. towards the Prizes in Classes 184 to 187 are contributed through the British Goat Society.

184.—FEMALE GOAT. Any variety, that has kidded ..	2 10	1 10	15/-
185.—GOATLING. Any variety, over 1 year, but not exceeding two years	2 10	1 10	15/-
186.—FEMALE KID. Any Variety	2 10	1 10	15/-
187.—MALE GOAT. Any variety, over one year ..	2 10	1 10	15/-

The Prizes awarded at this Show will also be included in the awards for the British Goat Society "Breeders' Perpetual Challenge Cup."

First Prize.	Second Prize.	Third Prize.
£	£	£

PIGS.

Entry Fees : Members, 20/- ; Non-Members, 40/- each entry.

BERKSHIRE.

Judge—Viscount PORTMAN, Buxted Park, Uckfield, Sussex.

£9 towards the Prizes in Classes 188 to 191 are contributed by the British Berkshire Society.

CLASS.

188.—BOAR, exceeding 18 months old	7	3	2
189.—BOAR, not exceeding 18 months old	5	3	2
190.—Breeding Sow, exceeding 18 months old ..	7	3	2
191.—Breeding Sow, not exceeding 18 months old ..	5	3	2

CHALLENGE CUPS (Value £10 10s. each).

Offered by the British Berkshire Pig Society.

To be won twice in succession or three times in all before becoming the property of the Exhibitor.

Best Boar in Classes 188 or 189.

Best Sow in Classes 190 or 191.

A Silver Medal will be awarded to the Breeder of the prize-winning Animals.

LARGE BLACK.

Judge—J. H. GLOVER, Cornwood, South Devon.

£40 towards the prizes in the Large Black Classes and the Champion Prizes are contributed by the Large Black Pig Society.

192.—BOAR, farrowed before May 1, 1922	7	5	2
193.—BOAR, not exceeding 12 months old on May 1, 1923 ..	7	5	2
194.—BOAR, farrowed in 1923	7	3	2
195.—BREEDING SOW, farrowed before May 1, 1922 ..	7	5	2
196.—BREEDING SOW, not exceeding 12 months old on May 1, 1923	7	5	2
197.—Pair of BREEDING SOWS, farrowed in 1923 ..	7	3	2

CHAMPION PRIZES.

Best Animal in Classes 192 to 194	5		
Best Animal in Classes 195 to 197	5		

LARGE WHITE.

Judge—D. W. GUNN, 27, Compton Road, Sherwood, Notts.

£10 towards the prizes in Classes 198 to 201 and the Champion Prize are offered by the National Pig Breeders' Association.

198.—BOAR, farrowed in 1920, 1921 or 1922	7	3	2
199.—BOAR, farrowed in 1923	5	3	2
200.—BREEDING SOW, farrowed before 1923	7	3	2
201.—Pair of BREEDING SOWS, farrowed in 1923 ..	5	3	2

CHAMPION PRIZE.

A GOLD MEDAL or £5 for the Best Animal in Classes 198 to 201.

First Prize.	Second Prize.	Third Prize.
£	£	£

MIDDLE WHITE.

Judge—J. H. Holland, Feene House, Newington,
Folkestone.

£10 towards the prizes in Classes 202 to 205 and the Champion Prize
are offered by the National Pig Breeders' Association.

CLASS.

202.—BOAR, farrowed in 1920, 1921 or 1922	7	3	2
203.—BOAR, farrowed in 1923	5	3	2
204.—Breeding Sow, farrowed before 1923	7	3	2
205.—Pair of Breeding Sows, farrowed in 1923	5	3	2

CHAMPION PRIZE.

A GOLD MEDAL or \$5 for the Best Animal in Classes 202 to 205.

GLOUCESTERSHIRE OLD SPOTS.

Judge—J. H. WHITE, Bagborough Home Farm,
Shepton Mallet.

£20 towards the Prizes in Classes 206 to 211 are contributed by the
Gloucestershire Old Spots Pig Society.

206.—BOAR, farrowed before 1922	7	3	2
207.—BOAR, farrowed in 1922	7	3	2
208.—BOAR, farrowed in 1923	5	3	2
209.—Breeding Sow, farrowed before 1922	7	3	2
210.—Breeding Sow, farrowed in 1922	5	3	2
211.—Pair of BREEDING SOWS, farrowed in 1923	5	3	2

CHAMPION PRIZES.

Offered by the Gloucestershire Old Spots Pig Society.

The Sir George Watson Challenge Cup, value £21, for the best Animal in
Classes 206 to 211. (The Cup to be won three times by the same
Exhibitor with different animals before becoming his own property).

The Deane-Drummond Cup, value \$14 14s. for the best Boar in Classes
206 to 208. (The Cup to be won twice by the same exhibitor with
different animals before becoming his own property).

WESSEX SADDLEBACK.

Judge—J. CRUMPLER, Longlands, North Coker,
Yeovil.

£24 towards the Prizes in Classes 212 to 216 and the Special Prizes are
offered by the Wessex Saddleback Pig Society, and all pigs exhibited
must be entered or eligible for entry in that Society's Herd Book.

212.—BOAR, farrowed before 1923	7	3	2
213.—BOAR, farrowed in 1923	5	3	2
214.—Breeding Sow, farrowed before April, 1922	7	3	2
215.—Breeding Sow, farrowed after April 1, 1922	7	3	2
216.—Pair of Breeding Sows, farrowed in 1923	5	3	2

GOLD MEDAL.

Value \$5 5s. for the best Pig exhibited in Classes 212 to 216, and a Silver
Medal to the Breeder who is not the exhibitor of the Animal
winning the Gold Medal.

First Prize.	Second Prize	Thlrd Prize.
£	£	£

WELSH.

Judge—W. JONES, Pantydefaid, Llandyssul.

£20 of the Prizes in Classes 217 to 221 are contributed by the Welsh Pig Society.

CLASS.

217.—BOAR, 12 months old or over	7	3	2
218.—BOAR, under 12 months old	5	3	2
219.—BREEDING Sow, born not later than July 1, 1921, in farrow, or having farrowed in 1923 ..	7	3	2
220.—BREEDING Sow, born after July 1, 1921, and not later than August 1, 1922	7	3	2
221.—BREEDING Sow, born after August 1, 1922 ..	5	3	2

LONG WHITE LOP-EARED.

**Judge—W. R. NORTHMOOR, Uppaton, Yelverton,
S.Devon.**

£31 10s. 0d. towards the Prizes in Classes 222 to 224 are contributed by the Long White Lop-Eared Pig Society.

222.—BOAR, any age	7	3	2
223.—Sow, any age, in farrow, or with farrow not ex- ceeding 8 weeks old on 1st day of Show ..	7	3	2
224.—Pair of BREEDING Sows, farrowed in 1923 ..	7	3	2

PRODUCE.

First Prize. £	Second Prize. £	Third Prize. £
----------------------	-----------------------	----------------------

CIDER.

(Open to Growers or Makers).

Entry Fees : **MELIDERS**, 3/3 ; **Non-Members**, 6/- each entry.**Judge**—**W. GAYMER**, **The Pleasaunce**, **Attleborough**, **Norfolk**.**CLASS**

225.—Cask of not less than 9 and not more than 30 gallons of CIDER, made in 1922, of a specific gravity not exceeding 1.015 at 60 deg. Fahr.	5	3	2
226.—12 Quart Bottles of CIDER, made in 1922, ditto ..	5	3	2
227.—Cask of not less than 9 and not more than 30 gallons of CIDER, made in 1922	5	3	2
228.—12 Quart Bottles of CIDER, made in 1922	5	3	2
229.—12 Quart Bottles of CIDER, made in any year previous to 1922	5	3	2

CHEESE.**Entry Fees :** **Class 230. Members**, 10/- ; **Non-Members**, 20/- . **Classes 231 to 233 : Members**, 7/6 ; **Non-Members**, 15/- ; **Classes 234 and 235**, 3/6.**Judge**—**A. TODD**, **British Dairy Institute**, **Reading**.

230.—Three Cheddar CHEESES (not less than 56lbs. each) made in 1922	10 0	7 0	4 0
231.—Three Cheddar CHEESES (not over 56lbs. each), made in 1922	8 0	5 0	3 0
232.—Four Loaf or other Truckle CHEESES, made in 1922	5 0	3 0	2 0
233.—Three Caerphilly CHEESES, made in 1923	5 0	3 0	2 0

The Prizes in Classes 234 and 235 are offered by the Glamorgan Agricultural Committee and are open only to residents in the Administrative County of Glamorgan who have attended Dairying Courses or Classes in the County and have not won a Prize for Caerphilly Cheese at the London Dairy Show or the Shows of the Royal, Bath and West, or Welsh National Agricultural Societies.

234.—Three Caerphilly Cheeses, made in 1923 by Students who have attended the Glamorgan County Council Travelling Dairy School	2 0	1 0	0 10s.
235.—Three Caerphilly Cheeses, made in 1923 by Students who have attended courses in Dairying at the University College, Cardiff	2 0	1 0	0 10s.

CREAM CHEESE, BUTTER AND CREAM.

(These Classes are not open to Professional Teachers.)

Entry Fees : Classes 236 to 240. Members, 3/6 ;
Non-Members, 6/- ; Classes 241 and 242, 3/6.

**Judge—Mrs. E. HUGHES, Buckland Home Farm,
Bwlch, Breconshire.**

CLASS.	First Prize.		Second Prize.		Third Prize.		Fourth Prize.	
	£	s.	£	s.	£	s.	£	s.
236.—Three Cream or other Soft CHEESES ..	3	0	2	0	1	0	0	10
237.—2lbs. of Fresh (or very slightly salted) BUTTER	4	0	3	0	2	0	1	0
238.—2lbs. of BUTTER, in the making of which no salt has been used, to be judged on the last day of the Show	4	0	3	0	2	0	1	0
239.—12lbs. of Keeping BUTTER, in a jar or crock, to be delivered to the Secretary 4 weeks before the Show	5	0	4	0	3	0	2	0
240.—Four half-pounds of SCALDED CREAM ..	3	0	2	0	1	0		

The Prizes in Classes 241 and 242 are offered by the Glamorgan Agricultural Committee and are open only to Students resident in the Administrative County of Glamorgan who have attended the Dairying Courses at the University College, Cardiff, or the Glamorgan County Council Travelling Dairy School and have not won a prize for Butter at the London Dairy Show or the Shows of the Royal, Bath and West or Welsh National Agricultural Societies.

241.—2lbs. Fresh, or very slightly salted Butter ..	2	1	0	0	10
242.—2lbs. Fresh Butter in the making of which no salt has been used	2	1	0	0	10

COMPETITIONS.

BUTTER-MAKING.

(No Winner of a first prize given by this Society for Butter-making during the last 3 years is eligible to compete in Class 244 or 245.)

Entry Fees : Classes 243, 246 and 247, 3/6 each entry ; Classes 244, 245, 248 and 249, Members, 3/6 ; Non-Members, 6/-.

Judge—Miss D. G. SAKER, Somerset Farm Institute, Bridgwater.

(For Conditions and Regulations see Entry Form.)

CLASS.	First Prize.		Second Prize.		Third Prize.		Fourth Prize.	
	£	s.	£	s.	£	s.	£	s.
243.—For Children under 14 years of age, attending School. On the 1st day of the Show	3	0	2	0	1	0	0	10
244.—For Men and Women, bona fide workers on a farm. On the 2nd day of the Show	4	0	3	0	1	10	1	0
245.—For Students who have been through a course of instruction in Butter-making at any County Council School, and who have not previously won a first or second prize at one of the Society's Shows. On the third day of the Show	..	..	4	0	3	0	1	10
The Prizes in Classes 246 and 247 are offered by the Glamorgan Agricultural Committee and are open only to residents in the Administrative County of Glamorgan who have attended Dairying Courses or Classes in the County and have not won a prize for Buttermaking at the London Dairy Show or the Shows of the Royal, Bath and West or Welsh National Agricultural Societies.								
246.—For Students who have attended the Dairying Courses at the University College, Cardiff, on the 3rd day of the Show	..	..	3	0	2	0	1	0
247.—For Students who have attended the Glamorgan County Council Travelling Dairy School, on the 4th day of the Show	..	..	3	0	2	0	1	0
248.—For Men and Women. On the 4th day of the Show	..	..	..	..	..	..	..	..
249.—For Winners of First and Second Prizes in the Butter-making Classes 243 to 248, or at any previous meeting of the Society. On the 5th day of the Show.	..	..	..	..	..	..	..	..

1st Prize, Gold Medal.

2nd „ Silver Medal.

3rd „ Bronze Medal.

First Prize.	Second Prize.	Third Prize.	Fourth Prize.
£ s.	£ s.	£ s.	£ s.

MILKING.

Entry Fees : 2/6 each entry.

Judge—S. J. KNIGHT, Buckingham Lodge, Keynsham,
Bristol.

CLASS.

250.—For Men, 16 years of age and over ..	1	10	1	0	0	15	0	10
251.—For Women, 16 years of age and over ..	1	10	1	0	0	15	0	10
252.—For Boys and Girls under 16 years of age ..	1	10	1	0	0	15	0	10

The Prizes in Class 253 are offered by the Glamorgan Agricultural Committee.

253.—For Residents in the Administrative County of Glamorgan who have attended the Dairying Courses at the University College, Cardiff or the Glamorgan County Council Travelling Dairy School, and have not won a prize for Milking at the London Dairy Show or the Shows of the Royal, Bath and West, or Welsh National Agricultural Societies	1	10	0	15	0	10	0	5
--	---	----	---	----	---	----	---	---

SHOEING.

Entry Fees : Members, 3/6 ; Non-Members, 6/- each entry.

Judge—J. R. R. COLEMAN, M.R.C.V.S., The Limes,
Croft Road, Swindon.

254.—For CART HORSE SHOEING by Smiths who have not previously won a First Prize in an open class for Horse Shoeing at one of the Society's Shows. On the 2nd day of the Show	4	0	3	0	2	0	1	0
255.—For NAG HORSE SHOEING, by Smiths who have not previously won a First Prize in an open class for Horse Shoeing at one of the Society's Shows. On the 3rd day of the Show	4	0	3	0	2	0	1	0
256.—CHAMPION CLASS. For CART HORSE SHOEING by previous winners of a First Prize at the Society's Show or a First Prize at any National or County Agricultural Society's Show. On the 4th day of the Show	4	0	3	0	2	0	1	0
257.—For SHOE MAKING or TURNING, by Smiths, the patterns and descriptions of the Shoes to be supplied by the Judge. On the 4th day of the Show	4	0	3	0	1	0	0	10

SPECIAL PRIZES.

Offered by the Swansea Local Committee.

Best competitors in Class 254 resident in the Counties of Glamorgan, Carmarthen, Pembroke, Cardigan, Brecon or Radnor	2	0	1	0
Best competitors in Class 255, ditto, ditto	2	0	1	0

First Prize	Second Prize.	Third Prize.
£	£	£

TIMBERING AND SPLICING COMPETITIONS.

Entry Fee : 3/6.

The Prizes in Classes 258 and 259 are offered by the Swansea Local Committee.

Judge—J. DYER LEWIS, 21, Hanwell Road, Penarth.

CLASS.

258.—Timbering Competition, open to Timbermen and Colliers, on the 4th day of the Show	..	4	0	2	0	1	0
259.—For the best Splice in Colliery Rope, on the 4th day of the Show	.. .. .	4	0	2	0	1	0

CONDITIONS AND REGULATIONS FOR LIVE STOCK.

GENERAL.

ENTRIES.

1. The following are the Fees payable for Stock entries made on or before March 24. After that date and up to March 31 entries (except in the Any Agricultural, Colliery, Harness, Saddle and Jumping Classes) will only be received on payment, in each case, of double the fee named below. *Exhibitors are requested to note that no exception can be made to this.* The entry fee is not returnable to an Exhibitor who enters an Animal in a Class for which it is ineligible, or for entries that are withdrawn after the date of entry has expired.

		MEMBERS.	NON-MEMBERS
		(see Reg. 5 below)	
Shire Horses and Hunters for each entry, including Horse Box ..	30s.	60s.	
Welsh Cobs and Ponies, including Box	10s.	10s.	
Any Agricultural and Colliery Horses, Harness, Saddle and Jumping.			
without Box	for each Entry	5s.	10s.
Ditto, with Box	for each Entry	30s.	60s.
Cattle, Sheep and Pigs	for each Entry	20s.	40s.
Goats	for each Entry	7s. 6d.	10s.

For particulars as to fees in the Produce, Butter-making, Milking, Shoeing, Timbering and Splicing, and Poultry Classes, see Entry forms.

2. Animals entered in the Any Agricultural, Colliery, Harness, Saddle and Jumping Classes, and not having a box in the Yard, must be in the Yard by the time stated on the day on which they compete, and, with the consent of the Stewards may leave the Yard as soon as they have been judged. Entries in these Classes, if no Box is required, must reach the Secretary not later than 12 noon on the day previous to the competition for which the animal is entered. If a Box is required the entry must reach the Secretary on or before March 24, or at double fees as stated above, by March 31.

3. No Exhibitor can make more than three entries in any one Class of Horses, Cattle, Sheep, Goats or Pigs, except in the Any Agricultural, Colliery, Harness, Saddle or Jumping Classes.

4. No Entry will be received unless the fee accompanies it, and (if the Exhibitor is a Member of the Society) the subscription for the year, unless previously paid, together with any arrears that may be due.

5. The privilege of entering at Members' fees is strictly limited to members of the Society, or of the Swansea Horse Show Society, elected on or before January 31, 1923, and subscribing not less than £1 annually, or if elected after that date who has paid his subscription for 1922 and an additional £1 before the date of the closing of entries.

6. Where a Prize is offered for a pair or pen of Animals, single entry fees only are payable for each pair or pen, and only one entry form must be used.

7. All Entries must be made on the printed forms to be obtained of the Secretary (F. Holland Storr, 3, Pierrepont Street, Bath), and, in applying for Forms, Exhibitors are requested to state how many entries they wish to make of either Horses, Cattle, Sheep, Goats or Pigs, as a separate entry form must be filled up for each animal.

8. Every Exhibitor or Competitor is requested to carefully examine the List of Prizes and Conditions, as he will be held responsible for the correctness of his Certificate of Entry. An Exhibitor omitting to give information asked for on the entry form, with regard to the age, breeder, name, colour, sire, dam, &c., of an animal, will be liable to have his entry disqualified, and if an exhibitor desires that his animal shall compete for any special prize offered, he must notify this on the entry form where requested to do so.

9. If an Exhibitor or Competitor fails, when called upon by the Stewards or Council, to prove the correctness of his Certificate of Entry to their satisfaction, the Entry may be disqualified and any award made to it cancelled.

10. An Exhibitor who has made, in due time, an entry of Horses, Cattle, Sheep, Goats or Pigs, in a particular class, will be permitted, up to Wednesday, April 11, to withdraw the entry of such animal, and to substitute for it the entry of another animal in the same class, on payment of the difference, if any, between the amount of the entry fee originally paid for the animal withdrawn, and the post entry fee. When, after entry, an animal dies, the exhibitor will be permitted to substitute another entry for it, in the same class, without payment of any further fee, upon affording evidence of death and furnishing particulars of the substituted entry in time for the alteration to be made in the published catalogue.

11. An animal can be entered in as many Classes as it is eligible for on payment of an additional fee in each Class. No additional fee is, however, payable in the case of Special or Champion Prizes for exhibits already entered in any particular Class.

12. Every exhibit must be the *bona fide* property of the Exhibitor both at the time of entry and on the first day of the Exhibition. For the purposes of this Meeting H.M. Officer's chargers will be considered as the property of the Officer in Classes 51 to 60.

SHOW YARD.

13. The Yard will be open for the reception of Horses (see Regulation 2 for Any Agricultural, Colliery, Harness, Saddle and Jumping Horses), Cattle, Sheep, Goats and Pigs, on Tuesday and Wednesday, May 15 and 16, from 7 a.m. to 6 p.m. Shire Horses and Hunters will also be received from 6 to 8 o'clock on the morning of the first day of Show, but all other Stock Entries (except Welsh Cobs and Ponies, which must be in the Yard before 8 a.m. on Monday, May 21), must be in the Yard the previous day. A label denoting the number of each entry will be sent by the Secretary, and must be securely affixed to the head of the Animal. The carriage of exhibits must in all cases be paid by the Exhibitor. No exhibit subject to charges will be received by the Officers of the Society.

14. If an animal is brought into the Show Yard without having been entered for exhibition, the owner shall be liable to a fine of £2 and to the forfeiture of any prize awarded to him or her.

15. All Live Stock (see Conditions 2, 13 and 38 for exceptions with regard to Horses) must remain in their places in the Show Yard until after six o'clock in the afternoon of the last day of the Show, and shall under no circumstances be taken out of their places in the interval without the special permission of the Stewards.

16. During the time the Show is open to the public no rug or cloth shall be hung up so as to conceal any animal in a horse-box or stall, except with the special permission of the Steward of the department. All sheets used for the purpose must be removed before 9 o'clock on each day the exhibition is open to the public, and must not be replaced until after the closing hour of the Show each day.

17. All Exhibits and all persons in charge of the same, will be subject to the Orders, Regulations, and Rules of the Society, and the Stewards shall have the power to remove from the Yard the Stock or property belonging to, and to cancel

the admission ticket of, any Exhibitor who shall infringe any of the Regulations or Conditions of the Meeting, or who shall refuse to comply with any instructions given by the Stewards, without any responsibility attaching to the Stewards or the Society in consequence of such removal.

18. No animal shall be decorated with colours other than the Society's Prize Rosettes.

19. No person shall be allowed to fix any placard, or to take down any official placard, in the Yard, without the written permission of the Stewards.

20. All persons in charge of Exhibits will be subject to the orders of the Stewards, and will be required to parade or exhibit the animals in their charge at such times as may be directed by the Stewards. Servants must be in attendance each day during the Show at least a quarter of an hour before the time appointed for exhibiting the animals under their charge in the Show rings. Servants in charge of animals must see that the animals' boxes or stalls are kept clean. No oil or cooking stove of any description must be lighted in the Horse Boxes and any one found offending in this respect will be dealt with in accordance with Regulation 33. Owners of animals exhibited will be held responsible for the behaviour of their Servants, and for the consequences of any misconduct of such Servants.

21. Servants in charge of Stock at night must, if they leave the yard, return before 10 p.m., or they will not be admitted.

22. On the day previous to the opening and on each day of the Show hay or green food and straw will be supplied by the Society free of expense to exhibitors at the Forage Stores in the Show Yard. Servants must apply at the Forage Stores for their Forage Tickets after they have brought their animals into the Yard. Corn, meal, and cake can be obtained in the Show Yard at fixed prices.

NOTE.—For the convenience of Exhibitors wishing to sell their animals, a Register will be kept at the Secretary's Office, in which they may enter the prices.

TICKETS.

23. Each Exhibitor of Live Stock whose entry fees amount to £1 and upwards will have a Free Ticket of admission to the Show Yard sent to him, except in the case of a Member, who will receive his Member's Badge in lieu of an Exhibitor's Ticket. Tickets for the use of Servants in charge of Live Stock remaining in the Yard will also be sent, and the Exhibitor will be held responsible for the proper use of such Tickets. In the case of animals not having a box in the Yard, a Servant's Ticket will not be required as the official label will admit the Driver or Rider, Horse and Vehicle into the Yard. In case of transfer or other improper use of a Ticket the Exhibitor will be required to pay a fine of £1 for each case. Exhibitors will be held responsible for the attendance at each Parade of as many Servants as Tickets have been issued for.

RESPONSIBILITY.

24. Neither the Society nor any of its Officers or Servants shall be in any way responsible or accountable for anything that may happen (from any cause or circumstance whatever) to Exhibitors or their Servants, or to any animal or article exhibited, or property brought into the Show Yard, or otherwise for anything else in connection with, or arising out of, or attributable to, the Society's Show, or these or any other Conditions or Regulations prescribed by the Society in relation thereto.

25. Each Exhibitor shall be solely responsible for any consequential or other loss, injury, or damage done to, or occasioned by, or arising from, any animal or article exhibited by him, and shall indemnify the Society against all legal or other proceedings in regard thereto.

26. The Society, its Officers and Servants, will not be liable for any errors or mistakes that may happen in placing or penning the Stock or Articles to be exhibited, but the Servants in charge of the same must see that they are placed or penned according to their entries.

DISQUALIFICATION.

27. The use of resin, soap, sawdust above the knee, or other substances designed to give an artificial appearance; cording; or other improper means adopted in showing an animal in the Agricultural Horse Classes will be regarded as a disqualification.

28. No animal which has been exhibited as Fat Stock at any Show shall be eligible to compete for the Prizes offered in this Prize Sheet.

29.—An animal in the Breeding Classes having any unsoundness likely to be transmitted to its progeny shall be disqualified thereby from receiving any Prize offered by or through the Society.

30. If it shall be proved to the satisfaction of the Stewards or Council that an Exhibitor or Competitor has knowingly signed an incorrect Certificate, or knowingly given an incorrect Pedigree of any animal, or has attempted to enter an animal or other exhibit or to obtain a Prize by any other unfair means at this or any other Agricultural Society's Meetings, or is under exclusion from any Breed Society for fraudulent practices, the Council shall have the power to cancel all awards made to such Exhibitor or Competitor, to disqualify him or her from exhibiting or competing at future Meetings of the Society, and to inform other Agricultural Associations of their action in this respect.

PENALTIES.

31. As the non-exhibition of animals entered for the Show causes unnecessary preparations and expense, and disarranges the Show Yard, any person entering Stock, and failing to exhibit the same, shall pay a penalty of 10s. for each entry, unless a Certificate, under the hand of the Exhibitor or his authorised agent, be lodged with the Secretary of the Society, before the day of exhibition, certifying that such non-exhibition is caused either by—(1) the death of the animal or animals; or (2) contagious or infectious disease (confirmed by the explanatory certificate of a Veterinary Surgeon); or (3) by its becoming ineligible for the Class in which it has been entered. The fine is not remitted in the case of an exhibitor selling an animal between the time of entry and the date of the Show.

32. Every Exhibitor will be required to undertake to forfeit and pay to the Society the sum of £20, as and for liquidated damages, if any animal which he exhibits be, to his knowledge, suffering from any contagious or infectious disease, and the Stewards are empowered to prevent the entry of any diseased animal into the Yard, or to have it removed therefrom.

33. Any infringement of any of these or any other prescribed Regulations or Conditions will subject the Exhibitor to a fine of £1 by the Stewards, and to the forfeiture, by order of the Council, of any prize to which he may be entitled (in addition to all other consequences attaching to such infringement). The Council reserves to itself the right to inform other Agricultural Associations of any decision it may come to with respect to an Exhibitor.

AWARDS.

34. The Society reserves to itself the right to withhold any prize, if, in the opinion of the Stewards, the conditions and regulations have not been properly complied with, or if, in the opinion of the Judge, there is insufficient merit.

35. Only the signed awards of the Judges are accepted by the Society as evidence that a prize has been awarded, and the production of the prize card or the rosette by an Exhibitor will not entitle him to the prize.

36. The certificate of the Veterinary Inspector, whether as to age or soundness, shall be required only in cases where the Judges are in doubt, or where the Stewards may consider it necessary. (See also Regulation 46 with reference to Stallions and Mares.) The decision of the Inspector in such cases shall be final and conclusive; and in case it shall be against the animal to which a Prize has been awarded, such animal shall be disqualified from receiving such Prize.

PROTESTS.

37. Any Exhibitor wishing to lodge a protest having reference to Live Stock exhibited at this meeting must make the same in writing on a form to be obtained from the Secretary, and deposit with him the sum of £3. If on investigation the protest is not sustained to the satisfaction of the Stewards, the sum thus deposited shall, at the discretion of the Council, be forfeited to the funds of the Society. All protests (except in the Any Agricultural, Colliery, Harness, Saddle or Jumping Classes) must be delivered at the Secretary's Office in the Show Yard on the day on which the award is made, and no protest will be SUBSEQUENTLY received, unless a reason satisfactory to the Stewards be assigned for the delay. Any protest against an award in the Any Agricultural, Colliery, Harness, Saddle or Jumping Classes must be made to the Steward in the ring immediately after the judging of the class to which it refers, and a deposit of £3 must, at the same time, be handed to the Steward. The Stewards will consider such protests at 11 o'clock on the following day at the Secretary's Office, at which time and place any person making a protest must attend or be represented by his authorised agent. The decision of the Stewards shall be final.

APPLYING TO CERTAIN CLASSES ONLY.

HORSES.

38. Horses can be removed from the Yard at night on deposit by the Exhibitor of £3 at the Finance Office, which sum will be forfeited if the Horse does not return at 8 a.m. each day during the Exhibition. This regulation does not apply to Animals not having a box in the Yard entered in the Any Agricultural, Colliery, Harness, Saddle and Jumping Classes only.

39. Exhibitors must provide saddles for Horses in Classes 14 to 20, 35 to 40, and 51 to 60, as they are to be ridden; and vehicles and harness for those in classes 41 to 50, which are to be driven.

40. No Horse, unless a Foal, will be admitted into the ring without a proper bit.

41. The Prizes for Stallions foaled before 1921 will be withheld until a certificate from the owner is delivered to the Secretary that the Horse has served at least 10 Mares during the current season.

42. All Foals must be the offspring of the Mares with which they are exhibited, and the name of the Sire of the Foal must be stated on the certificate of entry.

43. Mares entered as in Foal shall, except as otherwise stated hereafter, be certified to have produced a living Foal before August 1st of the year of the Show. If the required certificate, which must be on a form obtainable from the Secretary, is not received by September 30, 1923, the prize awarded will be forfeited.

44. Horses may, at the discretion of the Stewards, be measured, and the measurement shall be taken in the shoes worn by the entry at the time of judging, and these shoes shall not be removed to allow of the entry being shown in another class.

45. In the Harness Classes for Hackneys exceeding 14 hands (except yearling colts and fillies) no shoe (nails included) may exceed 2 lbs. in weight, and for Ponies not exceeding 14 hands, yearling colts and yearling fillies, no shoe (nails included) may exceed $1\frac{1}{2}$ lbs. in weight.

46. All Stallions and Mares (yearlings and toals excepted) to which prizes have been awarded in the breeding classes shall be examined by the Society's Veterinary Inspector, and unless pronounced free from indications of hereditary disease shall be ineligible to receive the prize. The owner of an Animal rejected under this Regulation may, upon his application in writing to the Secretary, be furnished with a copy of the Veterinary Certificate. This Regulation shall not, however, apply to any animal holding a Ministry of Agriculture Certificate for the current year, which must accompany the animal and be available for inspection by officers of the Society.

47. The following special conditions apply only to the Prizes offered by the Shire Horse Society, viz.: the owner of the animal entered to have been a Member of the Bath and West and Southern Counties Society, for not less than six months previous to March 31, 1923; a Mare five years old, or upwards must produce a Foal in the current year, or have had a Foal in the preceding year; in the case of in-foal Mares a certificate of foaling must be lodged with the Secretary of the Shire Horse Society before the medal will be despatched. No animal to compete which has won the Shire Horse Society's Gold Medal during the current year: the Royal and London Shows being excepted; the winning animal to be entered, or eligible for entry, in the Shire Horse Society's Stud Book; and a certificate that the winner is free from hereditary disease signed by the Society's Veterinary Inspector after his examination on the Show Ground, must be lodged with the Secretary of the Shire Horse Society, but Stallions licensed by the Ministry of Agriculture, and Stallions, Mares and Fillies passed at the London Show, shall be exempt from further examination when selected for Medals during the current year. A prize of £5 will also be awarded to the breeder of the animal winning the Medal, provided that he is a member of the Shire Horse Society, and that the Dam is a Mare registered in the Shire Horse Stud Book. All awards must be completed within six months of the date upon which the Medal was awarded, or they will be void. The Council reserves the right to award the prizes only to persons approved by the Shire Horse Society and subject to confirmation in the uncontrolled discretion of the Council.

48. The following special conditions apply only to the Prize offered by the Hunter Improvement and National Light Horse Breeding Society for Hunter Brood Mares, viz.:—The Mare awarded the Medal must possess a certificate of soundness from hereditary disease, signed by the Bath and West Society's appointed Veterinary Inspector, who must be a member of the Royal College of Veterinary Surgeons, after his examination of the animal on the Show Ground. Any Hunter Brood Mare, 8 years old or over, having been either awarded one of the Society's Gold Medals since 1910, or selected as Reserve for same, or having been passed sound after January 1, 1911, by a Veterinary Surgeon appointed by the Hunters' Improvement and National Light Horse Breeding Society, shall be exempt from further examination upon the owner producing at the time of exhibition the official veterinary certificate issued by the Secretary of that Society.

49. The following special conditions apply only to the Prize offered by the Hunters' Improvement and National Light Horse Breeding Society for best Mare or Gelding of any age exhibited in the Riding Classes. The Hunter awarded the medal must possess a certificate of soundness from hereditary disease, signed by the Bath and West Society's Veterinary Inspector, who must be a member of the Royal College of Veterinary Surgeons, after his examination of the animal on the Show Ground. The selected Mare, if unregistered, or the selected Gelding, if unentered, must be registered or entered within a month of the award in the Hunter Stud Book. No animal may take more than one of

these medals in 1923. The Judge, in awarding the Medal, is instructed to give preference to animals showing weight-carrying properties.

NOTE.—No awards of the above-named Society's Prizes or Medals to a Hunter named and registered in the Hunter Stud Book and subsequently entered by the owner under another name, will be recognised or confirmed unless a re-entry has been previously lodged by the owner for the Hunter Stud Book and the new name registered by the Society.

50. The Jumping Competitions will be carried out in accordance with, and judged under the rules of, the Show Jumping Association. The jumps may consist of single hurdle, gate, double hurdle, bank, wall, and water, at the discretion of the Judge and Stewards. Each horse competing shall have its catalogue number affixed in such a way as to be easily seen by the general public.

CATTLE.

51. All cattle must be properly secured to the satisfaction of the Officers of the Society on being brought to the gate of the Yard, or they will not be admitted.

52. All Bulls must have a ring or clamp attached to the nose, and, in the aged Classes, must be provided with a strong chain, and be led with a proper stick.

53. All cattle will be required to be paraded in the ring at least once a day at the discretion of the Stewards.

54. No Bull calved before January 1st, 1921, or in the Aberdeen-Angus Classes before December 1st, 1920, will be eligible to receive a Prize until certified to have served not less than six different Cows (or Heifers) previous to June 1st, 1923, and to be the sire of live calves dropped in the year 1923, or in the Aberdeen-Angus Classes after December 1st, 1922.

55. No Cow or Heifer, entered as in-milk, will be eligible to receive a Prize unless certified to have had a living Calf within the fifteen months preceding the date of the Show, or that the Calf, if dead, was born at the proper time.

56. Every Cow or Heifer in-milk shall be milked dry in the Show Yard at 7.30 p.m. on the evening preceding the day of judging, in the presence of an officer of the Society appointed for the purpose.

57. Any animal in the Cattle Classes found to be artificially coloured will be disqualified.

58. The milk yielded by Cows in the Show Yard must not be sold at the stalls, but will be purchased by the Society for the purposes of the Dairy at a price to be agreed upon, and will be paid for on delivery at the Milk Receiving Office in the Dairy.

59. The following conditions apply only to the prizes offered for Pedigree Dairy Shorthorn and Devon Milking Cows:—The Cows and Heifers entered will be clean milked out at 6 o'clock on the evening preceding the opening of the Show to the satisfaction of the Stewards, and will be again milked in the ring on the first morning of the Show in the presence of the Judge, who shall see the Milk weighed, and any animal not yielding up to the following standard will not be awarded a prize:—

	Having Calved within 2 calendar months of the 1st day of the Show.		Having calved between 2 and 3 calendar months of the 1st day of the Show.		Having calved more than 3 calendar months of the 1st day of the Show.	
	lbs. of milk. Shrthns.	Dvns.	lbs. of milk. Shrthns.	Dvns.	lbs. of milk. Shrthns.	Dvns.
Cows, 5 years and upwards ..	30	22	27	21	24	18
Cows, 4 years and under 5 years..	26	20	23	20	20	17
Cows or Heifers, 3 years and under 4 years	22	18	19	17	16	14
Heifers, under 3 years old ..	18	15	15	13	12	10

60. The following conditions shall apply only to the prizes offered for Pedigree Dairy Shorthorn Bulls and Heifers:—No Bull is eligible to compete unless it has been registered or accepted for registration in the Year Book of the Dairy Shorthorn Association. The dam and sire's dam of the Animals entered to have received, in or before 1918, a Certificate of Merit in Milking trials or tests recognised by the Dairy Shorthorn Association, or in an inspection class confined to Pedigree Dairy Shorthorns where the standard weight of milk has been a necessary qualification, or to hold a yearly record, published in the Association's Year Book, up to mid-day, October 1st, 1919, or after that date a record within 315 days after calving (published or accepted as eligible for publication as follows):—(1) Cows, 4 years old and upwards at date of calving, 8,000lbs.; (2) Cows, over 3 years old and under 4 years old at date of calving, 6,000lbs.; (3) Heifers, 3 years old and under at date of calving, 5,000lbs. No Bull or Cow having taken one of the Association's Prizes is eligible to compete again the same year, except at the R.A.S.E. Show. The prizes in this class will not be awarded unless there are at least three individual exhibitors. A certificate from the Dairy Shorthorn Association stating that the Bull is entered in their Register must be furnished by the exhibitor at the time of making the entry.

61. In the Dexter Classes clipping (except in the case of a few hairs on the top of the tail) will disqualify an animal.

62. The following conditions apply to animals entered in the Milk and Butter Test Classes:—The date of last calving must be given on the entry form and, when an animal calves between the date of entry and that of the Show, notice of such calving must be sent to the Secretary or the animal may be disqualified. Points for Lactation will be allowed as follows:—One point for every completed 10 days since calving, calculated to the first day of the show, deducting the first 40 days. Maximum lactation points 12.

63. Except in Local and Dairy Classes, every animal entered for competition must be entered, or certified as eligible to be entered, in the Herd Book of its Breed, where such Herd Book exists and has been in existence for not less than seven years, and all cattle must be tattooed in accordance with the rules of their respective Breed Societies, where such rules exist. Where an animal is entered by the Exhibitor as eligible for entry in the Herd Book of its breed, proof of such eligibility must be furnished to the Secretary at the time of making the entry.

SHEEP.

64. Each pen of Ewes must be of the same Flock.

65. The following conditions apply to the Medal offered by the South-down Sheep Society:—The sheep competing must be entered or eligible for entry in the Flock Book, and there must be at least three competitors. In the Class for pairs of ram lambs, exhibitors will have the privilege of competing for the medal with any one of their exhibits.

66. Except in Local Classes every animal entered for competition must be entered or certified as eligible to be entered, in the Flock Book of its Breed, where such Flock Book exists and has been in existence for not less than seven years, and all Sheep must be tattooed in accordance with the rules of their respective Breed Societies where such rules exist. Where an animal is entered by the Exhibitor as eligible for entry in the Flock Book of its breed, proof of such eligibility must be furnished to the Secretary at the time of making the entry.

PIGS.

67. All Sows farrowed before 1923 shall be certified to have had a litter of live Pigs within six months preceding the first day of exhibition, or to be in-Pig at the time of entering, so as to produce a litter of Pigs, farrowed at their proper time, before the 1st of September following. In the case of in-Pig Sows the Prize will

be withheld until the Exhibitor shall have furnished the Secretary with a certificate of farrowing as above. If the required Certificate, which must be on a form obtainable from the Secretary, is not received on or before the 15th September following, the prize awarded will be forfeited.

68. All Pigs exhibited with a Sow shall be her own produce, of the same litter, and not exceeding two months old at the time of the Show.

69. No Sow above 18 months old that has not produced a litter of live Pigs shall be eligible to compete in any of the Classes.

70. Any animal in the Pig Classes found to be artificially coloured will be disqualified.

71. Should any question arise as to the age of any exhibit in the Pig Classes, the Stewards shall at the request of the Judge, have the state of their Dentition examined by a competent authority. If the state of the Dentition shall indicate that the age of any of the Pigs does not agree with the Dentition Test, the Stewards shall report the same to the Council, who shall have power to disqualify such Pig or Pigs. The following is the state of Dentition in Pigs which will be considered as indicating that they exceed the ages specified below :—Six Months : Pigs having their corner permanent incisors cut will be considered as exceeding this age. Nine Months : Pigs having their permanent tusks more than half up, will be considered as exceeding this age. Twelve Months : Pigs having their central permanent incisors up, and any of the three first permanent molars cut, will be considered as exceeding this age. Fifteen Months : Pigs having their lateral temporary incisors shed, and the permanents appearing, will be considered as exceeding this age. Eighteen Months : Pigs having their lateral permanent incisors fully up will be considered as exceeding this age.

72. Except in the Local Classes, every animal entered for competition must be entered or certified as eligible to be entered in the Herd Book of its breed, where such Herd Book exists and has been in existence for not less than seven years and must conform to the rules of their respective Societies. In the Large Black Classes the official ear-marker bearing the Herd Book number must be in the ear of all pigs entered, and the Judges will be instructed not to award prizes unless this regulation is observed, or a reasonable explanation given for the absence of the marker.

GOATS, CIDER, POULTRY, DAIRY PRODUCE, BUTTER-MAKING,

MILKING, SHOEING, AND TIMBERING AND SPLICING

COMPETITIONS.

For Conditions and Regulations see entry form.

ADJUDICATION OF PRIZES

73. The Judges are instructed as follows, and entries are received subject to this :—

a. Not to award any Prize or Commendation unless the entry possesses sufficient merit.

b. Not to award a Prize to any Horse or Mare in the Breeding Classes, unless it is free from unsoundness likely to be transmitted to its progeny ; or if a Gelding, unless free from unsoundness ; in either case, an accident having temporary consequences only excepted, and in awarding the Hunters' Improvement Society's Medals to give preference to animals showing weight-carrying properties.

c. In awarding Prizes to Cattle, Sheep, and Pigs, to decide according to the relative merits of the animals for Breeding purposes, and not to take into consideration their present value to the butcher.

d. To make the milking capacity and form of udder one of the chief points in awarding prizes to Cows and Heifers in milk.

e. To draw the attention of the Stewards to any exhibit that has been improperly prepared for exhibition or is wrongly entered.

f. To give in a "RESERVE NUMBER" in each Class, indicating the animal or exhibit which in their opinion possesses sufficient merit for the Prize, if the animal or exhibit to which the Prize is awarded should become disqualified. Should the "Reserved Number" succeed to a prize, and be itself disqualified, the prize will be forfeited.

g. Immediately after the Judging to deliver to the Stewards their signed awards stating the numbers to which the Prizes are adjudged, and noting all disqualifications.

74. Should any question arise upon which the Judges may desire a further opinion, the Stewards shall provide them with a Referee.

PAYMENT OF PRIZES.

75. Cheques for the Prizes awarded (except where further qualification of an animal is required) will be drawn at the meeting of the Finance Committee held in July, 1923, and will then be forwarded by post to the Exhibitors to whom they have been awarded.

INTERPRETATION OF CONDITIONS.

76. The Society reserves to itself by its Council the sole and absolute right to interpret these or any other prescribed conditions and regulations, or Prize Sheets, and to arbitrarily settle and determine all matters, questions or differences in regard thereto, or otherwise arising out of or connected with or incident to the Show. Also to refuse and to cancel any entries, disqualify Exhibitors, prohibit exhibition of entries, vary or cancel awards of prizes or reserved numbers, and relax conditions, as the Society may deem expedient.

POULTRY.

(Under Poultry Club Rules).

Entry Fees : Class 1, Members, 4/- ; Non-Members, 6/- ;
Other Classes, Members, 3/- ; Non-Members, 4/-
each entry.

Judges—G. DOBLE, Royal Ashton Hotel, Taunton—(Classes 1 to 22,
49 to 54 and 67 to 71), and CLEM WATSON, F.Z.S., Oxley,
Watford—(Classes 1, 23 to 48 and 55 to 71).

*The Birds in Classes 1 to 49 must have been hatched
previous to January 1st, 1923.*

CLASS.	First Prize.		Second Prize.		Third Prize.	
	£	s.	£	s.	£	s.
1.—Any Two Pure Breeds, best mated to cross for producing Table Poultry.—Cock and 3 Hens, bred in 1921 or 1922, the Property of one Exhibitor	3	0	2	0	1	0
2.—COCHIN or BRAHMA—Cock	1	0	0	15	0	10
3.—Ditto—Hen	1	0	0	15	0	10
4.—PLYMOUTH ROCK (Barred)—Cock	1	0	0	15	0	10
5.—Ditto—HEN	1	0	0	15	0	10
6.—Ditto (Any other variety)—Cock	1	0	0	15	0	10
7.—Ditto—Hen	1	0	0	15	0	10
8.—ORPINGTON (Buff)—Cock	1	0	0	15	0	10
9.—Ditto—Hen	1	0	0	15	0	10
10.—Ditto (Any other variety)—Cock	1	0	0	15	0	10
11.—Ditto—Hen	1	0	0	15	0	10
12.—MINORCA—Cock	1	0	0	15	0	10
13.—Ditto—Hen	1	0	0	15	0	10
14.—RHODE ISLAND RED—Cock	1	0	0	15	0	10
15.—Ditto—Hen	1	0	0	15	0	10
16.—SUSSEX (Speckled)—Cock	1	0	0	15	0	10
17.—Ditto—Hen	1	0	0	15	0	10
18.—SUSSEX (Any other variety) Cock	1	0	0	15	0	10
19.—Ditto—Hen	1	0	0	15	0	10
20.—DORKING (Any variety)—Cock	1	0	0	15	0	10
21.—Ditto—Hen	1	0	0	15	0	10
22.—LANGSHAN—Cock or Hen	1	0	0	15	0	10
23.—WYANDOTTE (Silver or Gold Laced)—Cock	1	0	0	15	0	10
24.—Ditto—Hen	1	0	0	15	0	10
25.—Ditto (White)—Cock	1	0	0	15	0	10
26.—Ditto—Hen	1	0	0	15	0	10
27.—Ditto (Black)—Cock	1	0	0	15	0	10
28.—Ditto—Hen	1	0	0	15	0	10
29.—Ditto (Any other colour)—Cock	1	0	0	15	0	10
30.—Ditto—Hen	1	0	0	15	0	10
31.—LEGHORN (White)—Cock	1	0	0	15	0	10
32.—Ditto—Hen	1	0	0	15	0	10
33.—Ditto (Any other colour)—Cock	1	0	0	15	0	10
34.—Ditto—Hen	1	0	0	15	0	10
35.—HAMBURG (Any variety)—Cock	1	0	0	15	0	10
36.—Ditto—Hen	1	0	0	15	0	10

POULTRY—*continued.*

CLASS.	First Prize.	Second Prize.	Third Prize.
	£	£	£
37.—OLD ENGLISH GAME (Black Red)—Cock ..	1 0	0 15	0 10
38.—Ditto—Hen	1 0	0 15	0 10
39.—Ditto (Any other colour)—Cock	1 0	0 15	0 10
40.—Ditto—Hen	1 0	0 15	0 10
41.—INDIAN GAME—Cock	1 0	0 15	0 10
42.—Ditto—Hen	1 0	0 15	0 10
43.—FRENCH (including Faverolles)—Cock ..	1 0	0 15	0 10
44.—Ditto—Hen	1 0	0 15	0 10
45.—ANCONA—Cock	1 0	0 15	0 10
46.—Ditto—Hen	1 0	0 15	0 10
47.—ANY OTHER DISTINCT BREED not previously mentioned (excluding Bantams)—Cock ..	1 0	0 15	0 10
48.—Ditto—Hen	1 0	0 15	0 10

SELLING CLASSES.

49.—ANY DISTINCT BREED—Cock or Cockerel (Price not to exceed £1 ls.)	1 0	0 15	0 10
50.—ANY DISTINCT BREED—Hen or Pullet (Price not to exceed £1 ls.)	1 0	0 15	0 10

CHICKENS OF 1923.

51.—COCHIN, BRAHMA, PLYMOUTH ROCK, ORPINGTON, LANGSHAN, SUSSEX or DORKING—Cockerel ..	1 0	0 15	0 10
52.—Ditto—Pullet	1 0	0 15	0 10
53.—MINORCA, WYANDOTTE, LEGHORN, HAMBURG, FAVEROLLES or French—Cockerel	1 0	0 15	0 10
54.—Ditto—Pullet	1 0	0 15	0 10
55.—GAME, MALAY, or any other Distinct Breed not previously mentioned—Cockerel	1 0	0 15	0 10
56.—Ditto—Pullet	1 0	0 15	0 10

LIVE TABLE POULTRY.

57.—Pair of COCKERELS of any Pure Breed, hatched in 1923	1 0	0 15	0 10
58.—Pair of PULLETS of any Pure Breed, hatched in 1923	1 0	0 15	0 10
59.—Pair of Cross-bred COCKERELS, hatched in 1923 ..	1 0	0 15	0 10
60.—Pair of Cross-bred PULLETS, hatched in 1923 ..	1 0	0 15	0 10

SPECIAL PRIZES.

Offered by the Poultry Club.

BATH AND WEST AND SOUTHERN COUNTIES CUP (Value £10 10s.)
For the Best Bird in the Show, the property of a Member of the Poultry Club. The Cup to be won three times, not necessarily in succession, by the same exhibitor before becoming his absolute property.

A Silver Medal for best Cock or Cockerel in the Poultry Classes,
the property of a Member of The Poultry Club.

" " " Hen or Pullet, ditto, ditto.

The Associated Society's Bronze Medal for the Best Bird in the Show
(Winner need not be a Member of The Poultry Club, but must be a Member of the Bath and West and Southern Counties Society).

Prizes for Poultry for 1923.

clix

CLASFS.	DUCKS, GEESE AND TURKEYS.			First Prize.		Second Prize.		Third Prize.	
				£	s.	£	s.	£	s.
61.—	DRAKE	or DUCK	(Aylesbury)	..	..	..	1 0 0	15	0 10
62.—	"	"	(Rouen)	..	..	..	1 0 0	15	0 10
63.—	"	"	(Indian Runner)	..	..	..	1 0 0	15	0 10
64.—	"	"	(Any other variety)	..	..	..	1 0 0	15	0 10
65.—	GANDER	or GOOSE	..	..	..	..	1 0 0	15	0 10
66.—	TURKEY—Cock	or Hen	..	..	..	..	1 0 0	15	0 10

DEAD TABLE POULTRY.

(TO BE FORWARDED KILLED AND PLUCKED).

67.—	Pair of COCKERELS	of 1923, of any Pure Breed	..	..	..	1 0 0	15	0 10
68.—	"	PULLETS, ditto, ditto	..	..	..	1 0 0	15	0 10
69.—	Pair of Cross-bred COCKERELS	of 1923	..	..	..	1 0 0	15	0 10
70.—	"	" PULLETS ditto	..	..	..	1 0 0	15	0 10
71.—	Pair of DUCKLINGS	of 1923	..	..	..	1 0 0	15	0 10

POULTRY.

(Under Poultry Club Rules.)

CONDITIONS AND REGULATIONS.

CHARGES, &c.

1. Exhibitors may make an unlimited number of Entries on payment of fees as follows :—

		MEMBERS.	NON MEMBERS.
		s. d.	s. d.
For each entry (Class 1)	.. ..	4 0	6 0
.. (other Classes)	.. ..	3 0	4 0

The above fees include coops, food, and attendance.

N.B.—The above fees *must* be sent with the entries, or no notice will be taken of the latter.

2. The privilege of entering at Member's fees is strictly limited to Members of the Bath and West Society, or of the Swansea Horse Show Society elected on or before January 31, 1923, and subscribing not less than £1 annually.

3. All entries must be made on the printed forms to be obtained of the Secretary (F. H. STORR, 3, Pierrepont Street, Bath), and such forms must be correctly filled up and returned to the Secretary, together with all fees due, on or before April 21. Exhibitors are requested to carefully examine the List of Prizes and Conditions, as the Society cannot be responsible for any errors made by Exhibitors in the entry forms, and birds entered in a wrong Class will be necessarily excluded from competition. No alterations can be made in entry forms after they have been received by the Secretary.

4. The Council reserve the right to refuse the entries of any person.

5. Exhibitors must state the price and breed of their birds on their entry forms.

SHOW YARD.

6. All birds must be in the Show Yard by 6 p.m. on *Wednesday, May 16*, and no bird can be removed before 7 p.m. on *Tuesday, May 22*. Any Exhibitors who send for their birds must do so between 7 and 8 p.m. on that day.

7. All carriage must be prepaid to Swansea Railway Station, otherwise the birds will not be received at the Exhibition; but they will be conveyed free of expense from the Station to the Show Yard and back.

8. No Exhibitor or Servant will be allowed into the tent until the birds have been judged.

9. The Poultry Tent will not be open to the public until 2 o'clock on the first day of the Exhibition.

10. A Non-Transferable Admission Ticket for the Exhibition will be sent to each Exhibitor whose entry fees amount to £1 and upwards.

TABLE POULTRY.

11. In these Classes (57 to 60 and 67 to 71), quality for the table will be considered before mere weight. The date of hatching must be given and, in the case of cross bred birds, the breeds of the parents.

12. In Classes 67 to 71 the Birds must be sent killed and plucked. They will be withdrawn from exhibition when considered necessary, and, if unsold, will be

returned to Exhibitors after 6 p.m. on Saturday, May 19. Exhibitors are recommended to put a reasonable price upon their exhibits in these Classes so as to promote the sale of them.

SALES.

13. All birds may be claimed, at the price put upon them, any time after 4 o'clock on Thursday, May 17, and a sale *must take place* if the price stated be paid to the Clerk in the Poultry Office at the time of claiming. *No alteration can be made in the prices stated on the entry forms and in the Catalogue until after Saturday, May 19, when the price may be reduced on payment to the Steward of one shilling per pen on each alteration.* Birds must be *sold in pens*, and the price stated must include the basket. Birds entered in selling classes must be sent in separate hampers. A charge of 10 per cent. will be made for all birds sold. The persons who have the management of the sales cannot take charge of birds which are disposed of privately.

AWARDS.

14. No second prize will be given in any of the Classes unless there are three entries, and no third prize unless there are six entries.

DISQUALIFICATION.

15. The Judges are empowered to withhold a prize or prizes where the birds are not considered of sufficient merit, or in the chicken classes where they consider them over age, and are instructed to disqualify any that have been clipped, drawn, trimmed, marked, or dyed. In the Game Classes birds can be shown either dubbed or undubbed.

16. An Exhibitor detected in a false statement as to the age, etc., of any bird, or in any other practice calculated to deceive or mislead the Judges or Stewards, shall forfeit all or any prizes awarded to him or her at the Show, and will be disqualified from competing at any future Show of the Society, and the Council shall have power to inform other Societies of their action in this respect.

17. No person who shall have been shown to the satisfaction of the Council to have been excluded from exhibiting for Prizes at the exhibition of any other Society in consequence of having attempted to obtain a Prize by giving a false Certificate, or by other unfair means, and no person who is under exclusion from any Breed Society for fraudulent practices, shall be allowed to exhibit at this or any other Meeting of the Society.

18. Unhealthy birds will not be exhibited, but will be immediately returned to their owners, and the fees will be forfeited.

PROTESTS.

19. In order to check frivolous and vexatious protests, no protest will be entertained unless accompanied by a deposit of £1 in each case; and in case the protest is not substantiated the deposit may be forfeited to the Funds of the Society. All protests must be made before 12 o'clock (noon) on Friday, May 18.

FORFEITS.

20. Persons entering birds and failing to send the same to the Exhibition will forfeit the entrance fee for each pen so left vacant.

GENERAL.

21. All birds shown must be *bona fide* the property of the Exhibitor.

22. For each pen entered the Exhibitor will receive a label, on the reverse side of which he must legibly write his name and address for the return journey.

23. All eggs laid at the Exhibition will be destroyed.

24. The Stewards pledge themselves to take every care of the birds exhibited, but neither they nor the Society will, in any case, be responsible for any accident loss or damage, from whatever cause arising, the exhibits being entered at the sole risk of the Exhibitors, and Exhibitors will be required to hold the Society harmless in the event of loss.

25. In case of death of any bird during the Exhibition, it will be sent back for the inspection of the Exhibitor.

26. The Poultry Department is subject to the Rules and Regulations of the Society and its officers.

. *The use of properly-constructed Poultry Baskets will facilitate the safe and speedy conveyance of the birds to and from the Exhibition and all Birds entered in selling Classes must be sent in separate hampers.*

The Society cannot, under any circumstances, undertake to send telegrams to Exhibitors as to Judges awards.

Applications for Catalogues and printed lists of awards should be made only to the Publishers, MESSRS. W. LEWIS & SONS, Herald Office, Bath.

By order of the Council.

3, Pierrepont Street, Bath.

F. H. STORR, *Secretary.*

TELEGRAPHIC ADDRESS:—"AGRICULTURE, BATH."

TELEPHONE No 610.

FINANCIAL STATEMENTS

FOR

1922

WITH ITEMS OF 1921 FOR COMPARISON.

	PAGES
SUMMARY OF CASH ACCOUNT ... ..	... clxiv-v
ANNUAL CASH ACCOUNT	clxvi-clxxv
ASSETS AND LIABILITIES ACCOUNT ... ..	... clxxvi
FINANCIAL RESULT OF SHOW ... ..	... clxxvii

The Bath and West and SUMMARY OF THE CASH ACCOUNT

CR.

WITH COMPARATIVE

Page of accompany- ing Cash Account	RECEIPTS.			1922. PLYMOUTH			1921. BRISTOL.					
				£	s.	d.	£	s.	d.	£	s.	d.
	General :—											
cixvi	Dividends and Interest			813	7	6			767	16	5	
"	General Receipts			0	1	0			0	1	0	
"	Subscriptions from Members			1,078	16	0			1171	13	0	
"	Life Members			20	6	0			190	0	0	
"	Journal			62	6	11			80	8	11	
							1,974	11	5	2,209	19	4
	Show :—											
cixviii	Implements			3,180	17	11			4,121	15	10	
"	Horses	£	s. d.									
"	Cattle, Sheep, Goats and Pigs	1,819	4 0						2,496	3	0	
"	Catalogues, Fodder Sales, &c.	2,164	8 0						3,460	13	6	
		123	17 11						192	4	0	
				3,547	9	11			6,149	0	6	
clxx	Poultry			81	18	6			95	2	3	
"	Shoeing			39	10	0			31	0	0	
"	Nature Study and Handicrafts			-	-	-			2	2	0	
"	Small Holdings and Allotments	-	-	54	3	0			236	2	6	
cixxi	Cheese and Butter			92	1	2			100	5	9	
"	Working Dairy			180	9	7			260	17	1	
"	Older			6	3	6			8	15	0	
"	Admissions			8,136	5	0			14,049	14	3	
cixxiv	Unapportionable :—											
	Contract Premiums and Cloak											
	Rooms		569 15 2						800	4	10	
	Sales and Fittings		717 12 8						861	18	10	
				1,287	7	10			1,662	3	8	
"	Subscription from Swanses for 1923 Show			800	0	0			800	0	0	
							17,406	6	5	27,516	18	10
							19,380	17	10	29,726	18	2
	Timber in hand from Bristol Show					6,752	6	0				
	Deposit returned					3,500	0	0	5,000	0	0	
	Balance due to Bank, December 31st								3,610	2	6	
							£29,633	8	10	98,337	0	8

Southern Counties Society.**FOR THE YEAR ENDING DEC. 31st, 1922.****STATEMENT FOR 1921.****Dr.**

Page of accompany- ing Cash Account	PAYMENTS.	1922. PLYMOUTH.		1921. BRISTOL.	
		£ s. d.	£ s. d.	£ s. d.	£ s. d.
	General:—				
clxvii	Salaries	1,226	8 5	1,210	8 0
"	Printing, Postage, Stationery, &c.	621	8 9	671	12 5
"	Journal	606	0 1	598	19 3
			2,453 17 3	2,476	19 8
	Show:—				
clxix	Implements	1,387	5 10	2,271	4 1
"	Horses	2,024	18 7	3,000	0 4
"	Cattle, Sheep, Goats and Pigs	3,767	0 7	4,940	8 4
"	Fodder, &c.	930	8 1	1,689	9 3
		6,722	7 3	9,629	17 11
clxxi	Poultry	330	6 6	361	10 11
"	Shoeing	193	1 5	218	5 6
"	Nature Study and Handicrafts	192	2 6	242	18 6
"	Forestry	210	1 2	269	10 11
"	Small Holdings and Allotments	136	17 0	387	12 3
"	Horticulture	314	5 1	325	0 6
clxxiii	Cheese and Butter	237	2 0	309	16 0
"	Working Dairy	775	14 4	924	9 7
"	Order	132	11 3	159	7 1
"	Bees	7	10 0	5	0 0
"	Public Announcements	684	11 8	956	8 8
clxxv	Unapportionable:—				
	Erection of Offices, &c.	3,057	2 8	4,540	18 8
	Carriage of Plant	213	8 9	163	13 3
	Stand Fittings	356	8 8	499	5 10
	Police	474	6 0		
	Miscellaneous	1138	18 10	920	16 7
		5,240	4 11	6,124	14 4
"	Swansea Show—				
	Timber, Stacking and Carriage	622	3 10	6,752	6 0
			17,186 4 9	28,938	2 3
"	Experiments		106 0 11	147	4 8
			19,749 2 11	31,561	6 7
	Investments and Deposit		5,541 0 0	5,036	0 0
	Balance due to Bank, Jan. 1st		3,610 2 6	1,739	14 1
	Balance in Bank, Dec. 31st		732 18 5		
			£ 29,633 3 10	38,337	0 8

January 15th, 1923.

Audited and found correct.

F. CLIFFORD GOODMAN, F.C.A.,

Auditor.

Passed by Council.

January 30th, 1923.

F. H. STORR,

Secretary.

The Bath and West and

Cr. CASH ACCOUNT FOR THE YEAR ENDING DEC. 31st,

RECEIPTS.	1922. PLYMOUTH.		1921. BRISTOL	
	£	s. d.	£	s. d.
DIVIDENDS AND INTEREST:—				
War Loan Stock	£207	17 5		201 14 11
Ditto (to replace Capital lost by Conversion)	6	11 5		11 13 9
South Australian Stock	30	1 0		29 0 4
New Zealand Stock	54	17 6		38 8 4
India Stock	226	3 0		158 6 4
Queensland Stock	65	19 4		46 3 8
New South Wales Stock	70	1 10		49 1 4
Canadian Pacific Railway Stock	46	13 7		47 5 0
Interest on Deposit	9	18 0		28 7 1
	717	18 1		610 0 9
Income Tax returned	95	9 5		157 15 8
			813	7 6
				767 16 5
GENERAL:—				
Telephone Way-leave			0	1 0
				0 1 0
SUBSCRIPTIONS FROM MEMBERS:—				
Arrears	23	9 0		25 2 0
Governors	145	18 0		164 7 0
Subscribers of £1 and upwards	901	19 0		974 14 0
„ 10s. „	7	10 0		7 10 0
			1,078	16 0
				1171 13 0
LIFE COMPOSITIONS:—			20	0 0
				190 0 0
JOURNAL:—				
Sales	4	1 1		10 18 6
Advertisements	68	5 10		69 10 5
			62	6 11
				80 8 11
Carried forward	£	1,974	11 5	

Southern Counties Society.**1922, WITH COMPARATIVE STATEMENT FOR 1921****Dr.**

PAYMENTS.	1922. PLYMOUTH.		1921. BRISTOL.	
	£	s. d.	£	s. d.
SALARIES:—				
Secretary	550	0 0	550	0 0
Assistant Secretary	450	0 0	450	0 0
Office Staff	166	8 5	150	8 0
Auditor	30	0 0	30	0 0
Consulting Chemist	30	0 0	30	0 0
		1,226 8 5		1,210 8 0
MISCELLANEOUS:—				
Printing	39	12 8	54	12 9
Stationery and Finance Books	40	18 4	75	17 3
Postages, Telegrams Cheque & Receipt Stamps	112	18 0	120	15 11
Ground Rent and Rates	30	11 1	37	18 2
Property Tax	11	5 0	11	5 0
Travelling Expenses	68	11 9	55	12 5
Carriage of Goods	15	0 4	6	3 4
Directories and Reference Books	0	8 6	0	15 6
Subscriptions	8	1 0	7	0 0
Repairs and Fittings	18	19 5	41	13 10
Hire of Council Rooms	2	4 0	1	1 3
Fuel and Light	13	13 1	9	4 5
Finance and other Committee's Expenses	25	17 6	4	14 0
Telephone	15	14 3	8	7 8
Bank Charges	57	13 10	84	8 11
Council Grants and Allowance to Widow of late Secretary	160	0 0	150	0 0
Miscellaneous	-	- -	2	2 0
		621 8 9		671 12 5
JOURNAL:—				
Editor	100	0 0	100	0 0
Printing and Stationery	393	17 6	382	5 9
Plans and Blocks	11	10 6	20	0 0
Journal Distribution	44	9 1	44	4 6
Postages, Stationery, Reference Books, etc.	9	0 0	8	15 0
Payments to Authors	48	8 0	38	14 0
		606 0 1		593 19 3
Carried forward	£	2,453 17 3		

CR.

CASH ACCOUNT—*continued.*

RECEIPTS.	1922 PLYMOUTH.		1921. BRISTOL.	
	£	s. d.	£	s. d.
Brought forward			1,974	11 5
IMPLEMENTS :—				
Fees for Space :—				
Machinery-in-Motion Shedding	984	10 0	1,390	0 0
Ordinary	293	0 0	433	1 0
Miscellaneous	428	10 0	395	0 0
Boarded	832	10 0	1002	5 0
Seed	42	10 0	38	0 0
Uncovered Ground	427	8 9	574	5 7
Catalogue Fees	74	19 0	105	1 0
Entry Fees	79	0 0	97	0 0
Additional Assistants' Tickets	38	10 2	27	2 6
			3,180	17 11
			4,121	15 10
HORSES, CATTLE, SHEEP, GOATS & PIGS :—				
Horses :—Entry Fees	£361	15 0	545	1 0
Fines	1	0 0	2	0 0
Grand Stand Admissions 742 4 0			1,406	2 0
Special Prizes	214	5 0	543	0 0
	1,319	4 0	2,496	3 0
CATTLE, SHEEP, GOATS AND PIGS :—				
Entry Fees	£1,228	0 6	1,931	10 0
Fines	25	10 0	43	6 0
Special Prizes	550	17 6	1,485	17 6
	2,104	8 0	3,460	13 6
Catalogues, Manure and Fodder	£121	17 11	179	12 0
Advertisement in Prize List			12	12 0
	123	17 11	192	4 0
			3,547	9 11
			6,149	0 6
Carried forward	£	8,702	19	3

CASH ACCOUNT—*continued.*

DR.

PAYMENTS.	1922. PLYMOUTH.		1921. BRISTOL.
	£ s. d.	£ s. d.	£ s. d.
Brought forward		2,453 17 3	
IMPLEMENTS :—			
Shedding	1,167 14 3		2,024 8 3
Stewards and Assistants	119 13 10		93 12 4
Printing, Stationery, etc.	51 16 9		97 9 6
Fees returned	47 16 0		55 14 0
		1,387 5 10	2,271 4 1
HORSES, CATTLE, SHEEP, GOATS & PIGS :—			
Horses :—Prizes	£1,041 17 0		1,174 8 0
Shedding & Grand Stand	805 7 11		1,689 18 4
Stewards and Assistants	122 19 2		85 8 7
Judges	54 14 6		50 5 5
	2,024 18 7		3,004 0 4
Cattle Prizes	1,122 0 0		1,324 0 0
Sheep Prizes	728 0 0		618 0 0
Goats Prizes	27 10 0		28 0 0
Pigs Prizes	345 0 0		453 8 0
Dairy Herds	58 0 0		190 0 0
Shedding and Canvas	1,132 10 6		2,073 5 8
Stewards and Assistants	80 14 1		66 4 0
Judges	180 14 3		182 14 8
Fees returned, etc.	7 5 0		4 16 0
Analyses of Milk	26 6 4		- - -
	3,767 0 7		4,940 8 4
Buildings, etc.	294 7 9		820 15 2
Fodder and Insurance	373 3 5		570 14 6
Forage Steward and Assistants	22 2 6		20 10 6
Veterinary Inspectors	33 17 10		25 1 5
Rowettes	24 16 3		25 5 0
Printing and Stationery	162 15 1		206 17 7
Refreshments to Judges	19 5 3		20 5 1
	980 8 1		1,689 9 3
		6,722 7 3	9,629 17 11
Carried forward		£ 10,563 10 4	

Cr.

CASH ACCOUNT—continued.

RECEIPTS.	1922. PLYMOUTH.		1921. BRISTOL.	
	£	s. d.	£	s. d.
Brought forward			8,702	19 3
POULTRY :—				
Entry Fees	81	4 6	91	11 0
Commission on Sales	0	14 0	3	11 3
			81	18 6
SHOEING :—				
Entry Fees	19	10 0	18	0 0
Special Prizes	20	0 0	13	0 0
			39	10 0
NATURE STUDY AND HANDICRAFTS.			-	- -
				2 2 0
SMALL HOLDINGS AND ALLOTMENTS :—				
Entry Fees	5	5 0	13	7 6
Special Prizes	48	18 0	222	15 0
			54	3 0
Carried forward	£	8,878 10 9		

CASH ACCOUNT—continued.**Dr.**

PAYMENTS.	1922. PLYMOUTH.		1921. BRISTOL.
	£ s. d.	£ s. d.	£ s. d.
Brought forward		10,563 10 4	
POULTRY :—			
Sheds, Staging, Pens and Runs	124 13 8		171 19 8
Steward and Assistants	44 15 10		31 7 9
Judges	11 10 9		8 17 6
Prizes	132 5 0		129 10 0
Printing, Stationery, Carriage, Food, etc.	17 1 3		19 16 0
		380 6 6	361 10 11
SHOEING :—			
Prizes	54 10 0		31 0 0
Judges	12 9 4		9 2 6
Anvils, Forges, Coals, Horses, Printing, etc.	12 6 0		5 19 6
Shedding	78 12 2		133 14 2
Stewards and Assistants	20 3 11		14 19 4
Exhibition of Models	15 0 0		15 0 0
Fees returned	- - -		8 10 0
		103 1 5	218 5 6
NATURE STUDY AND HANDICRAFTS :—			
Labour and Fittings	152 10 7		180 15 0
Steward and Assistants	35 1 8		25 5 0
Printing, Postage, Carriage, etc.	4 10 3		30 18 6
		192 2 6	242 18 6
FORESTRY :—			
Labour and Fittings	124 4 0		178 11 8
Steward, Judge and Assistants	16 19 0		16 10 9
Printing, Postage, etc.	3 4 6		14 16 0
Prizes, Grants and Demonstrations	65 13 4		50 12 6
		210 1 2	269 10 11
SMALL HOLDINGS AND ALLOTMENTS :—			
Labour and Fittings	39 1 11		81 11 8
Steward, Judges and Assistant	32 3 0		69 13 7
Printing, Postages, etc.	10 12 1		11 7 0
Prizes	55 0 0		225 0 0
		136 17 0	387 12 3
HORTICULTURE :—			
Gratuities to Exhibitors	150 0 0		150 0 0
Pavilion and Staging	140 3 3		149 2 9
Steward and Assistants, Printing, etc.	24 1 10		25 17 9
		314 5 1	325 0 6
Carried forward		£ 11,940 4 0	

Cr.

CASH ACCOUNT—*continued.*

RECEIPTS.	1922. PLYMOUTH.		1921. BRISTOL.	
	£	s. d.	£	s. d.
Brought forward . . .			8,878	10 9
CHEESE AND BUTTER:—				
Entry Fees	51	17 6	71	4 0
Sales	16	3 8	18	16 9
Special Prizes	24	0 0	10	5 0
			92	1 2
WORKING DAIRY:—				
Entry Fees, Competitions . £31 0 6			30	2 0
„ Tests . 29 0 0			73	0 0
	60	0 6	103	2 0
Sale of Produce	106	17 1	108	7 7
Special Prizes, etc.	13	12 0	49	7 6
			180	9 7
CIDER:—				
Entry Fees and Fines			6	3 6
			8	15 0
ADMISSIONS:—				
Admissions at 5s.	905	10 0	1,018	0 0
„ „ 4s.	3,588	16 0	6,720	4 0
„ „ 2s. 6d.	18	7 6	25	0 0
„ „ 2s.	3,184	2 0	5,400	2 0
„ „ 1s.	212	12 0	344	17 0
Season Tickets, etc.	226	17 6	541	11 3
			8,136	5 0
Carried forward	£	17,298 10 0	14,049	14 8

CASH ACCOUNT—continued.

DR.

PAYMENTS.	1922. PLYMOUTH.			1921. BRISTOL.		
	£	s.	d.	£	s.	d.
Brought forward				11,940	4	0
CHEESE AND BUTTER:—						
Judges		8	3 4			9 17 0
Prizes	105	0	0			133 0 0
Stewards and Assistants	20	4	10			14 18 6
Shedding and Staging	97	18	4			142 16 0
Printing, Stationery, Carriage, etc.	5	15	6			9 4 6
				237	2	0
WORKING DAIRY:—						
Stewards and Assistants	82	8	5			68 8 5
Judges and Demonstrators	73	14	8			50 11 10
Buildings	332	18	3			502 7 3
Printing, Stationery, Postages, etc.	8	1	9			9 13 9
Utensils, Carriage, etc.	128	18	6			141 18 5
Prizes	64	10	6			60 14 0
Coal, Salt, Ice, etc.	10	11	0			15 15 9
Purchase of Milk and Cream	55	10	0			35 0 0
Analyses.	19	1	3			- - -
				775	14	4
CIDER:—						
Shedding and Fittings	52	13	4			79 1 8
Steward and Assistants	27	14	5			22 15 8
Judge	5	13	0			3 3 0
Prizes	30	0	0			30 0 0
Analyses, Carriage, Printing, etc.	16	10	6			24 6 9
				132	11	3
BEEES:—						
Grant to Beekeepers' Association				7	10	0
						5 0 0
PUBLIC ANNOUNCEMENTS:—						
Advertising	305	4	2			393 4 0
Billposting	240	16	8			400 0 0
Railway Placards	72	0	0			74 11 0
Printing	66	10	10			88 13 8
				684	11	8
Carried forward				£ 13,777	13	8

CR.

CASH ACCOUNT—continued.

RECEIPTS.	1922. PLYMOUTH.			1921. BRISTOL.		
	£	s.	d.	£	s.	d.
Brought forward				17,293	10	0
SHOW (UNAPPORTIONABLE) —						
Sales, Fittings, etc.	717	12	8			861 18 10
Contract Premiums	455	11	0			642 2 2
Cloak Rooms, Lavatories and Telephone	114	4	2			158 2 8
				1,287	7	10
						1,662 3 8
SUBSCRIPTIONS FROM TOWNS:—						
Swansea for 1922 Show				900	0	0
				19,380	17	10
Timber in hand from Bristol Show				6,752	6	0
Deposit returned				3,500	0	0
„ due to Bank, December 31st						3,610 2 6
				229,633	3	10
				38,337	0	8

CASH ACCOUNT—continued.

Dr.

PAYMENTS.	1922. PLYMOUTH.			1921. BRISTOL.		
	£	s.	d.	£	s.	d.
Brought forward				13,777	13	3
SHOW (Unapportionable):—						
Official Buildings, etc..	2,661	19	3	3,947	16	2
Hoarding	395	3	5	593	2	6
Carriage of Plant	213	3	9	163	13	3
Stand Fittings	356	8	8	499	5	10
Insurance	86	9	6	110	19	10
Furnishing Official Buildings	80	0	0	66	11	10
Mess Room, Allotment Expenses, etc..	20	7	6	18	7	4
Gatekeepers, Yardmen, Messengers, etc.	210	9	5	156	1	2
Stewards of Finance and Treasurer	36	1	10	20	1	3
Secretaries, Finance Office and Treasurer's Clerks	102	13	10	91	9	7
Police	474	6	0	-	-	-
Badges, etc.	3	18	4	4	0	7
Catalogues for Press and Officials	6	13	6	12	1	0
Purchase of Plant	68	15	8	102	7	9
Printing, Stationery, etc.	99	19	8	153	15	1
Extension of Telegraph Wires and Telephone.	81	1	7	120	13	2
Commission on Season Tickets	4	18	2	14	8	0
Council Grant to Local Committee for Grand Stand	300	0	0	50	0	0
Show Yard Lecturers	16	3	6			
Rent of Field for Motor Garage	21	6	4			
				5,240	4	11
1923 SHOW:—						
Timber and Stacking	545	16	4	5,769	0	10
Carriage of Ditto	76	7	6	983	5	2
				6,222	3	10
EXPERIMENTS:—						
Older—Grant to Older Institute				100	0	0
ROUGH PASTURES DEMONSTRATIONS—						
Steward and Officials	5	8	0	12	18	9
Manures and Carriage	3	12	11	34	5	11
				9	0	11
				19,749	2	11
Investments and Deposit				5,541	0	0
Balance due to Bank, January 1st.				3,610	2	6
Balance in Bank, Dec. 31st				732	18	5
				£ 29,633	3	10
				38,337	0	8

JANUARY 16TH, 1923.

I hereby certify that I have examined the foregoing accounts for the year ending December 31st, 1922, compared the payments entered with the vouchers, and found them all in order and correct.

F. CLIFFORD GOODMAN, F.C.A.,
Auditor.

Passed by Council,

January 30th, 1923.

F. H. STORR, Secretary.

ASSETS AND LIABILITIES ACCOUNT TO DECEMBER 31st, 1922, WITH COMPARISON FOR 1921.

INVESTMENTS	1922.		1921.		LIABILITIES.	1922.		1921.	
	£	s. d.	£	s. d.		£	s. d.	£	s. d.
STOCK.									
1,546 1 6 New Zealand 3½. 1940.	1,500	0 0	1,270	2 9					
4,099 11 1 War Loan 5%. 1939/47.	5,809	19 6	4,099	11 1					
230 5 6 Ditto to replace capital lost by conversion.	216	8 3	230	5 5	SWANSEA MEETING	800	0 0	800	0 0
7,538 15 1 India 3%. 1924.	7,277	5 1	4,148	0 3					
1,649 3 11 Queensland 4%. 1924.	2,000	0 0	1,583	4 7					
4,057 16 0 N. S. Wales 4%. 1933.	4,000	0 0	3,570	17 3					
1,500 0 0 Can. Pacific R. 4%. Deb. 1924.	1,576	2 6	1,192	10 0	JOURNAL cost of, estimated at.	559	0 0	550	0 0
1,036 3 3 South Am. 4%. 1940 60	1,000	0 0	870	7 7					
	23,370	15 4	16,963	4 11					
FUND FOR REPLACEMENT OF CAPITAL.			36	11 4	DUE TO BANK			3,010	2 6
INCOME TAX RECOVERABLE.			16	18 8					
SHOW PLANT			1,544	11 1					
SHOW TIMBER			623	3 10	DUE TO FUND FOR REPLACEMENT OF CAPITAL.	36	11 4	41	15 9
HOUSE PROPERTY			£433	10 7					
FURNITURE AND FITTINGS			177	7 9					
			810	18 4					
SUBSCRIPTION ARREARS			160	12 0	SHOW A/cs UNPAID		4 12 8		
JOURNAL SALES			2	10 0					
SHOW A/cs DUE			37	12 0					
BALANCE IN BANK			732	18 5	BALANCE.			1,391	4 0
			£ 20,928	0 7				19,536	16 7
								£ 20,928	0 7
									23,053 6 2

January 15th, 1923.

I hereby certify that I have audited the above Balance Sheet, and that, in my opinion, it is correct, and shows the true position of the Society's affairs according to the Books. The securities for the Society's Investments have been produced to me, and I have found them in order. The various Stocks have been valued by the Society's Bankers.

F. OLIFFORD GOODMAN, F.C.A., Auditor.

Passed by Council

January 30th, 1923.
F. H. STORR, Secretary

Printed
Financial
State-
ments.

[illegible]

Bath and West and Southern Counties Society,
FOR THE
Encouragement of Agriculture, Arts, Manufactures and Commerce.

List of Members, 1923.

PATRON.

HIS MOST GRACIOUS MAJESTY THE KING.

PRESIDENT.

H.R.H. THE PRINCE OF WALES, K.G.

DEPUTY PRESIDENT.

THE RIGHT HON. THE LORD BLYTHSWOOD, K.B.E.

TRUSTEES.

THE MOST HON. THE MARQUIS OF BATH, K.G.

C. L. F. EDWARDS, Esq.

SIR J. SHELLEY, BART.

Names thus () distinguished are Governors.*

Names thus (†) distinguished are Life Members.

*** Members are particularly requested to make the Secretary acquainted with any errors in the names or residences.*

Name	Residence	Sub- scriptions		
		£	s.	d.
*†His Most Gracious Majesty the King	Windsor Castle .. ..	..	..	..
Ackers, Chas. P.	Huntley Manor, Gloucester ..	1	0	0
Ackland, J.	Francis Court, Broadclyst, Exeter	1	0	0
Acland, Alfred Dyke .. ..	.. ..	1	0	0
†Acland, Right Hon. Sir Arthur H. Dyke	85, Onslow Square, London, S.W.7 .. ..	..	..	..
Acland, Right Hon. F. Dyke, M.P.	93, Bedford Gardens, Campden Hill, London, W.	1	0	0
Adams, E. C.	The Cedars, Trowbridge, Wilts	1	0	0
Adlam, J. C.	Manor Farm, East Horrington, Wells	1	0	0

Name	Residence	Sub- scriptions		
		£	s.	d.
Aitken, Brig.-Gen.	3, Catherine Place, Bath	1	0	0
Alexander, H. G.	Dinas Powis, Cardiff	1	1	0
Allen, A.	Chesterblade, Shepton Mallet	1	0	0
Allen & Forster	Corn and Seed Merchants, Shep- ton Mallet	1	1	0
Allen & Sons	Cheese Merchants, Shepton Mallet	1	1	0
†Allen, Miss Ida Helena	Springfield House, Shepton Mallet .. ..	..	..	..
Allen, W. T.	Bradley House, West Pennard, Bridgwater	1	0	0
Allott, Major P. B.	Little Ashton, Codford, Wilts	1	0	0
Allsebrook, A.	Link Elm, Malvern Link	1	1	0
Amesbury, A.	Loxton, Axbridge	1	1	0
Anderson, Sir J.	Harrold Priory, Sharnbrooke, Beds	1	0	0
Angerstein, J. R.	Holbrook House, Wincanton	1	0	0
Anglo-Continental Guano Works	Dock House, Billiter Street, E.C. 3	1	0	0
Anglo-Swiss Condensed Milk Company	Chippenham	1	0	0
*Ansdell C. W.	Leckford Abbas, Stockbridge, Hants	2	0	0
Anthony, A.	Bryn Garth Piggeries, Bryn Garth, Hereford	1	0	0
Armitage, F.	Dean Court, Taunton	1	1	0
Armitage, Mrs.	Dean Court, Taunton	1	1	0
†Ashcomb, Lord	Denbies, Dorking .. ..	..	..	..
†Ashcroft, W.	13, The Waldrons, Croydon .. ..	..	..	..
Asher, S. G.	Ascot Place, Ascot	1	0	0
Associated Manufacturers Co.	72-80, Mansell Street, Aldgate, E.1	1	0	0
*Astor, Lord	Cliveden, Taplow, Bucks	2	0	0
Atkinson, Brig.-Gen. B., C.B., C.M.G.	Mistley Hall, Manningtree, Essex	1	0	0
Austin, E. A.	Baltonsbrough, Glastonbury	1	1	0
†Avebury, Lord	High Elms, Hayes, Kent .. ..	..	..	..
†Aveling, Thomas L.	Rochester .. ..	..	..	..
Avery, N.	Markham Farm, Easton in Gordano, Bristol	1	0	0
Avon Manure Company (Ltd.)	St. Philip's Marsh, Bristol	1	0	0
Badcock, H. Jefferies	Broadlands, Taunton	1	0	0
Badock, S. H.	Holmwood, Westbury-on-Trym, Bristol	1	1	0
Bagnall, O. R.	The Howsells, Malvern Link	1	0	0
Bainbridge, Mrs. R. C.	Elfordleigh, Plympton, Devon	1	0	0
†Baker, Hiatt C.	Oaklands, Almondsbury .. ..	..	..	..
Baker, G. E., J.P.	The Old House, Freshford, Bath	1	1	0
Baker, G. E. Lloyd	Hardwicke Court, Gloucester	1	0	0
†Baker, M. G. Lloyd	The Cottage, Hardwicke, Glos. .. ..	..	..	..

Name	Residence	Subscriptions		
		£	s.	d.
Ball, A. E.	Coulston House, Westbury, Wilts	1	0	0
Bamfords (Ld.)	Uttoxeter	1	0	0
Barber, J. Guttridge . .	Fylde House, Oxford Road, Exeter	1	0	0
Barford & Perkins (Ld.) . .	Peterborough	1	0	0
Barham, G. T.	Sudbury Park, Wembley, Middlesex	1	1	0
Baring, Hon. A. H.	The Grange, Alresford, Hants . .	1	0	0
*Barker-Hahlo, H. . . . .	. . . . .	2	0	0
Barnes, Major-Gen. Sir R. W. R., K.C.B., D.S.O.	Oakhay, Stoke Canon, near Exeter	1	0	0
Barry, Lieut.-Col. A. P. . .	Baltonsborough, Glastonbury . .	1	0	0
Barstow, J. J. J.	The Lodge, Weston-super-Mare . .	1	1	0
Barton, D. J.	Bodrean, Truro, Cornwall	0	10	0
Barton, W. L.	Easton House, Corsham	1	0	0
Bassett, A. F.	Tehidy, Camborne, Cornwall . . .	1	0	0
Bastard, H. E.	Tinten Manor, St. Tudy, S.O., Cornwall	1	0	0
Bates & Scholes	Victoria Iron Works, Denton, Manchester	1	0	0
*†Bath, Marquis of, K.G. . .	Longleat, Warminster . . . . .	..	..	..
Bath Brewery Co. (Ld.) . .	Argyle Street, Bath	1	0	0
Bath Gas Company	Bath	1	0	0
Bathurst, F. Marlay	The Warren, Lydney, Gloucester- shire	1	0	0
Bathurst, Hon. B. L.	Lydney Park, Gloucester	1	1	0
Bathurst, Lady Hervey . .	Somborne Park, Stockbridge . . .	1	1	0
Bathurst, Major Sir F. Harvey, Bart., D.S.O. . . .	Somborne Park, Stockbridge, Hants	1	1	0
Batt, R.	Clapton, Ston Easton, Bath	1	1	0
Batt, T. T.	West Hill, Heytesbury	1	0	0
*†Batten, Major H. C., D.S.O.	Aldon, Yeovil . . . . .	..	..	..
Batten, Col. Cary	Abbotsleigh, Bristol	1	0	0
Batten-Pooll, R. H.	Road Manor, Bath	1	0	0
†Baxendale, J. Noel	Froxfield Green, Petersfield . . . .	..	..	..
Beak, J. D.	Maiden Bradley, Bath	1	1	0
Beatty, A. Chester	Calehill Park, Little Chart, Kent	1	1	0
Beauchamp, L. B.	Norton Hall, near Bath	1	0	0
Beauchamp, Sir F. B. . . .	Woodborough House, Pensedown St. John, Bath	1	1	0
*Beaufort, Duke of	Badminton, Chippenham	2	2	0
Beaufoy, M. H.	Coombe Priory, Shaftesbury	1	0	0
Bell, Lieut.-Colonel M. G. E.	Bourne Park, near Canterbury . .	1	0	0
Bell, Sir James	Bellfield, Willerby, Hull	1	0	0
Benett-Stanford, Capt. J. . .	Hatch House, Tisbury	1	0	0
Bennett, Brothers	Journal Office, Salisbury	1	1	0
Bennett, R. A.	Thornbury, Glos.	1	0	0
Bentall, Edward H. & Co.	Heybridge, Maldon, Essex	1	0	0
Benyon, H. A.	Englefield House, Reading	1	1	0
*Benyon, J. Herbert	Englefield House, Reading	5	0	0

Subscriptions.

clxxx

Name	Residence	Subscriptions		
		£	s.	d.
Berry, A. E.	Rowgardens Wood, Charlwood, Surrey	1	0	0
Berry, Grosvenor	Mount Bures, Bures, Suffolk	1	0	0
Berry, H. W.	Blackmoor Farm, Langford, near Bristol	1	0	0
Berryman, F. H.	Field House, Shepton Mallet	1	1	0
Bessint, W.	Skinner's Farm, Woolland, Blandford, Dorset	1	0	0
Best, Major T. G.	East Charleton Manor, Norwich	1	0	0
†Best, Capt. W.	Vivod, Llangollen, N. Wales			
Best, Hon. J. W.	Charlton House, Ludwell, Salisbury	1	0	0
Reynon, Sir J. W., Bart., C.B.E.	Merthyr House, Cardiff	1	1	0
Biddle, W. F.	Parsonage Farm, Butleigh, Glastonbury	1	0	0
Bird, Kelly	Walton Farm, Walton, near Bridgewater	1	0	0
Birkett, E.	Biddlestone Farm, Brooke Ashford, Kent	1	0	0
Birmingham, C.	Nutscale, The Parks, Minchhead	0	10	0
Bishop, B. G.	Roddimore, Winslow, Bucks	1	1	0
Bishop, G., M.R.C.V.S.	Scotland House, Brislington, Bristol	1	0	0
†Blackburn, H. P.	Donhead Hall, Salisbury			
Blacker, E. G.	Northend Farm, Clutton	1	0	0
†Blackstone, G. M.	Blackstone & Co., Ltd., Stamford			
Blake, Col. M. Lock	Bridge, S. Petherton	1	0	0
Bland, V. S.	Estate Office, Foxhill, Wainborough, Wilts	1	0	0
Blandy, Capt. S. H. B.	Ivythorn Manor, Street, Somerset	1	0	0
Blathwayt, R. W.	Dyrham Park, Chippenham	1	1	0
Blathwayt, Rev. W. E.	Dyrham Rectory, Chippenham	1	0	0
Blay, G.	New Malden, London, S.W.	1	1	0
†Bledisloe, Lord, K.B.E.	Lydney Park, Gloucester			
Bledisloe, Lady	Lydney Park, Gloucester	1	1	0
Blinman, F. R.	Auctioneer, Farington Gurney, Bristol	1	0	0
Blinman, H. T.	Auctioneer, Farington Gurney, Bristol	1	0	0
*Blythwood, Lord	Penrice Castle, Reynoldston, S.O., Glamorgan	2	0	0
Blythwood, Lady	Penrice Castle, Reynoldston, S.O., Glamorgan	1	0	0
Board, W. R.	Great Frampton, Llantwit Major, Cardiff	1	0	0
Body, J. B.	Hindhead Court, Hindhead, Surrey	1	0	0
Boles, Lt.-Col. Dennis F., C.B.E., D.L.	Watts House, Taunton	1	0	0

Name	Residence	Subscriptions		
		£	s.	d.
Bolitho, R. F.	Ponsandane, Penzance	1	1	0
Bolitho, T. R.	Trengwainton, Hea Moor, Cornwall	1	1	0
Bond, A. E.	Wannerton, Kidderminster	1	0	0
Bond E. (W. Evans & Co.)	Hele, Cullompton	1	0	0
Boscawen, Rev. A. T. ..	Ludgvan Rectory, Long Rock, R.S.O., Cornwall	1	0	0
Boscawen, Townshend E. ..	2, Old Burlington Street, London, W.1	1	0	0
Bouverie, H. P.	Brymore, Bridgwater	1	0	0
†Bowen-Jones, Sir J., Bart. ..	The Woodlands, Bicton, near Shrewsbury .. ..	..	..	..
†Bowerman, Alfred	Sydney Villa, Broadclyst, Exeter .. ..	..	..	..
Braby, F. & Co. (Ltd.) ..	Ashton Gate Works, Bristol	1	0	0
Bracey, W.	Manor Hcuse, Martham, Great Yarmouth	1	0	0
Bracher, G. R.	Heathermead, Stone, near Falfeld, Glouc.	1	1	0
Bradford, Thomas & Co. ..	Salford, Manchester	1	0	0
*Braithwaite, T. S.	Durley Hill, Keynsham, Somerset	2	0	0
Branch, H. S.	West End, Foxham, Chippenham	1	0	0
Erasnett, A. W., Veterinary Surgeon,	Wells	1	0	0
*†Brassey, H. L. C.	Apethorpe Hall, Wansford, Northants .. ..	..	..	..
†Brassey, Capt. R. B.	Heythrop, Chipping Norton .. ..	..	..	..
Brenton, W. (Ltd.),	St. Germans, Cornwall	1	0	0
*Bridges, Agricultural Engineers	Whiteway Works, Cirencester	2	0	0
Bridges, J. H.	The Court, Eastbourne	1	1	0
Bridgman, C.	Conigre Farm, Filton, near Bristol	1	0	0
Bridgman, H.	Cleve Hill Farm, Downend, Bristol	1	1	0
†Brinkley, Rev. W. F. B. ..	The Vicarage, Abbots Leigh, Bristol .. ..	..	..	..
<i>Bristol Times and Mirror</i> , Proprietors of	Bristol	1	0	0
Bristol Wagon & Carriage Works Co., (Ltd.),	Bristol	1	1	0
Bristol Oil and Cake Mills (Croad & Irown Branch)	Bridgwater	1	1	0
Brewis, Major A.	Polhampton, Overton, Hants.	1	0	0
Britten, Forester	Kenswick Manor, Worcester	1	0	0
Britten, W. C.	Dungeon Farm, Crocombe	1	0	0
†Brocklehurst, H. D.	Sudeley Castle, Winchcombe .. ..	..	..	..
Brockman, F. D. .. ..	.. ..	1	0	0
Broughton, B. R.	Manor Farm, North Perrott, Crewkerne	1	0	0
Brown, F. E.	1,403, Neath Road, Swansea	1	0	0
Brown, P. G.	Tremadart, Duloe, Cornwall	1	0	0

Subscriptions.

clxxxiii

Name	Residence	Subscriptions		
		£	s.	d.
Brown, T. and Son	Marham Hall, near Downham, Norfolk	1	0	0
Browning, T.	Nash End Farm, Eastington, Stonehouse, Glos.	0	10	0
Browning, W.	Nash End Farm, Eastington, Stone- house, Glos.	0	10	0
†Bruford, E. J.	Nerrols, Taunton .. ..	..	..	..
Bruford, R., M.P.	Nerrols, Taunton	1	0	0
Brymer, W. J.	West Down Lodge, Winchester ..	1	0	0
Buchanan, W. G.	Manor House Farm, Abergavenny	1	0	0
Buck, D.	White House, Little Mill, Ponty- pool	1	0	0
Buckingham, Rev. C. L. ..	Rotherfield, Sussex	1	1	0
†Buckingham, Rev. Preb. ..	The Rectory, Doddiscombsleigh, Exeter, Devon .. ..	..	..	..
Buckingham, Capt. F. R. ..	Dishcombe, South Tawton, near Okehampton	1	0	0
Buckley, S. W.	Danygraig, Pembrey	1	0	0
Budd, Felix S.	Clarendon House, Stow Park, New- port, Mon.	1	0	0
Budd, J. E.	Tidebrook Manor, Wadhurst, Sussex	1	0	0
Bullows, Miss M. A. . .	Metchley, Barlows Road, Edgbas- ton, Birmingham	1	1	0
Burdge, J.	Claverham, near Bristol	1	0	0
Burdge, J. H.	Yatton, near Bristol	1	0	0
Burnard & Algar	Plymouth	1	0	0
Burrell, C. and Sons	St. Nicholas Works, Thetford ..	1	1	0
*Burrell, Sir M. R., Bart ..	Knepp Castle, Horsham, Sussex ..	2	0	0
†Bush, H. G.	The Grove, Alveston, Glos. ..	..	..	..
Bush, Mrs. L. E.	St. Mary's, Atlantic Road, South, Weston-super-Mare	1	1	0
Busk, Mrs.	Wraxall, Manor, Cattistock, Dorset	1	0	0
*Bute, The Marquis of	The Castle, Cardiff	2	0	0
Butler, W.	Gatcombe Farm, Flax Bourton, Bristol	1	0	0
Cable, Lord	Lindridge, near Teignmouth ..	1	1	0
Cæsar, H. and J.	Knutsford, Cheshire	1	0	0
Campbell, J.	31, St. Albans Road, Swansea ..	1	0	0
Candy, T. C.	Woolcombe, Cattistock, Dorset ..	1	0	0
Candy, W. T.	Beryl Farm, Wells. . . .	1	0	0
Candy, H. J.	Upper Lodge Farm, Ston Easton, Bath	1	0	0
Cadozo, C. H.	Sedgewell House, Chudleigh, Devon	1	0	0
Carew, C., M.P.	Collipriest, Tiverton	1	0	0
Carnarvon, Earl of	Highclere Castle, Newbury ..	1	1	0
†Carruthers, W., F.R.S. ..	14, Vermont Road, Norwood, London, S.E. .. ..	..	..	..

Name	Residence	Subscriptions		
		£	s.	d.
Carter, A. H.	Albion Chambers, Bristol	1	0	0
†Carter, E.	East Upton, Ryde, Isle of Wight . . . . .	..	..	..
Carter, G. V.	Waterston Manor, Dorchester	1	1	0
Carter, J. & Co.	Ravnes Park, London, S.W.	1	0	0
Cartridge, W. T. B.	Sidbury, Worcester	1	0	0
Cartwright, T. G.	30, Beaufort Gardens, London, S.W.	1	0	0
Cary, Edmund	Pyle, Shepton Mallet	0	10	0
†Cary, John	The Priory, Shepton Mallet . . . . .	..	..	..
†Cary, W. H.	Junior Constitutional Club, Piccadilly, London, W.1. . . . .	..	..	..
Cattybrook Brick Co. (Ltd.)	Provident Buildings, 15, Clare Street, Bristol	1	0	0
Cave, Captain A. L.	Sherwood, Newton St. Cyres, Exeter	1	0	0
Cave, Sir C., Bart.	Sidbury Manor, Sidmouth	1	0	0
Cave, C. H.	Sidbury Manor, Sidmouth	1	0	0
Chapman, W. W.	Mowbray House, Norfolk Street, Strand, London, W.C.2.	1	1	0
Chatterton & Ord	Hunting Stables, Marston Magna	1	0	0
Chichester, Major C. H.	Hall, Bishops Tawton, Barnstaple	1	0	0
Chichester, H.	Verbert, Willand, Cullompton	1	0	0
†Chick, J. H.	Wynford Eagle, Maiden Newton, Dorset . . . . .	..	..	..
†Chick, W. D.	Compton Valence, Dorchester . . . . .	..	..	..
*Chinneck, W. J.	Trobridge House, Crediton	2	0	0
Chivers and Son	Histon, Cambridge	1	0	0
Christie, A. L.	Tapeley Park, Instow, N. Devon	1	1	0
Christie-Miller, S. R.	Clarendon Park, Salisbury	1	0	0
Churchill, The Viscount, G.C.V.O.	Carlton Club, Pall Mall, London, S.W.1.	1	0	0
†Churchward, F.	Hill House, Stoke Gabriel, near Totnes . . . . .	..	..	..
Clancy, D.	Lower Knowle, Bristol	1	0	0
Clancy, M.	Kingshill House, Knowle, Bristol	1	0	0
Clare, A. J.	Beach Hill, Wells	1	0	0
*Clarendon, Earl of	The Grove, Watford	2	2	0
Clark, H.	North Wootton, Shepton Mallet	1	0	0
Clark, H. B.	Butleigh, Glastonbury	1	0	0
*†Clark, J. J.	Goldstone Farm, Hove, Sussex (Hon. Local Sec., 1885) . . . . .	..	..	..
Clark, W. S.	Street, Glastonbury	1	0	0
†Clarke, C. S.	Tracy Park, near Bath . . . . .	..	..	..
Clarke, J. W.	Bridwell, Cullompton	1	0	0
Clatworthy, E.	Cutsey, Trull, Taunton	1	1	0
*Clifden, Viscount	Lanhydroc, Bodmin	2	0	0
Clinton, Lord	Heanton Satchville, Dolton, N. Devon.	1	0	0
Clive, Capt. E. A. B.	Brympton, near Yeovil, Somerset	1	0	0
Clutton, R. W.	Hartswood, Reigate	1	0	0

Name	Residence	Sub- scriptions		
		£	s.	d.
Cobb, H. M.	Higham, Rochester	1	0	0
Cobb, R.	Watlynge, near Rochester	1	0	0
Cole, J. J. B.	Combe Manor, Hungerford	1	0	0
Colebrook, H. J.	South Lodge, Ivor Heath, Bucks.	1	0	0
Coleridge, Hon. G. D.	The Chanter's House, Ottery St. Mary, Devon	1	0	0
Collet, Sir Mark, Bart.	St. Clare, Kemsing, Sevenoaks	1	1	0
Collins, A. H.	Manor Farm, Codford St. Peter, Wilts.	1	0	0
Collins, J. S.	St. George's Lodge, Oldfield Park, Bath	1	1	0
Colman, Sir J., Bart.	Gatton Park, Surrey	1	0	0
Colmer, Jas. (Ltd.)	Union Street, Bath	1	0	0
Colston, Lieut.-Col. the Hon. E.	Hamilton House, Ashburn Place, S.W.7.	1	0	0
Colville, H. K.	Hillmarton Lodge, Calne, Wilts.	1	0	0
Cook, R.	Widhayes, Tiverton	1	0	0
Cookson, Mrs. Freville	Chute Standen, Andover	1	0	0
Cookson, Miss W.	Chute Standen, Andover	1	0	0
Cooling, G. and Sons	Northgate Street, Bath	1	1	0
Coonan, J. F.	Balmoral House, Mumbles, Swansea	1	0	0
Cooper, Sir G., Bart.	Hursley Park, Winchester	1	0	0
Cooper, Major R. W.	Eling House, Hermitage, Berks	1	0	0
Cope, W.	Southerndown, Glam.	1	1	0
Corbet, E. W. M.	Bute Estate Office, Cardiff	1	1	0
Corbett, S. E.	Perseverance Iron Works, Shewsbury	1	0	0
†Cork and Orrery, The Earl .. ..	.. ..	..	..	..
†Corner, H. W.	Manor House, Inglescombe, Bath .. ..	..	..	..
Cornish, Dr.	Pixford, Taunton	1	0	0
†Cornwallis, F. S. W.	Linton Park, Maidstone .. ..	..	..	..
Corp, R.	Woodford Farm, Wells	1	0	0
Cory, Sir Clifford J., Bart., M.P., D.L.	Llantarnam Abbey, Mon.	1	0	0
†Cotterell, Sir J. R. G., Bart.	Garnons, Hereford .. ..	..	..	..
Cotton, R. W.	Baltonsborough, Glastonbury	1	0	0
Coultas, J. R.	Allington, near Grantham	1	0	0
Coultrip, A. W.	Norwood Manor, East Church, Kent	1	0	0
†Courage, Raymond	Shenfield Place, Brentwood, Essex .. ..	..	..	..
Cousins, Chas.	Jenkins, Stisted, Braintree, Essex	1	0	0
†Cousmaker, Lt.-Col. G.	Westwood, Normandy, Guildford, Surrey .. ..	..	..	..
*Coventry, The Earl of	Croome Court, Worcester	2	0	0
Cowie, G. A.	39, Victoria Street, Westminster, London, S.W.1.	1	0	0
Cox, B.	Pwpen Farm, Christchurch, Newport, Mon.	0	10	0
Cox & Sons	47, City Road, Cardiff	1	0	0

Name	Residence	Subscriptions		
		£	s.	d.
Crawford, H. W.	Lloyd's Bank Chambers, Swansea	1	0	0
Criddle, A. M. B.	Worle, Weston-super-Mare ..	1	0	0
Cridlan, J. J.	Maisemore Park, Gloucester ..	1	0	0
Croker, O.	Grapnell Farm, Dinder, Wells ..	1	0	0
Crompton's Pure Salt Brick Co. (Ltd.)	255, Chapel Street, Salford ..	1	0	0
Cross, F. R.	Worcester House, Clifton..	1	1	0
*Cross, Carlton	Wyke Hall, Gillingham ..	2	0	0
Crossman A.,	Ivythorn, Street, Somerset ..	1	0	0
Crossman, B.	Chestnut Farm, Claverham, near Bristol	1	1	0
Crossman, D.	Lower Farm, West Horrington, Wells	1	0	0
Crossman, H. H.	Ham Farm, Yatton	1	0	0
Crowdy, A. A. G.	Manor Farm, East Horrington, Wells	1	0	0
Crutchley, P. E.	Limminghill Lodge, Ascot ..	1	0	0
Cumber, W. J.	Theale, Berks	1	0	0
Cuming, A. P.	Moreton Hampstead, Devon ..	1	0	0
Cundall, H. M., I.S.O., F.S.A.	4, Marchmont Gardens, Richmond Hill, Surrey	1	0	0
†Curre, E.	Itton Court, Chepstow .. ..	..	..	..
Currie, L.	Minley Manor, Farnborough, Hants	1	0	0
Dairy Supply Company (Ltd.)	Museum St., Bloomsbury, London, W.C.9	1	0	0
Dale, T. F.	Brush End, Burley, Hants. ..	1	0	0
Dalrymple, Major F. B. ..	Bartley Lodge, Cadnam, Hants...	1	0	0
†Daniel, H. T.	The Red House, Cannington, Bridgwater .. ..	..	..	..
Daniel, Thos. C.	Stuckeridge, Bampton, North Devon	1	1	0
Darby, A. E. W.	Little Ness, Shewsbury	1	0	0
Darby, E.	Liscombe, Dulverton	1	0	0
†Darell, D.	Hillfield House, Stoke Fleming, near Dartmouth .. ..	..	..	..
†Davey, J. Sydney	Brookym, Cury-Cross-Lanes, Cornwall .. ..	..	..	..
Davey, Sleep & Co. (Ltd.)..	Excelsior Plough Works, Plymouth	1	0	0
†Davey, I. R.	Wraxall Court, near Bristol ..	..	..	..
David & David	Old Bank Chambers, 27, High Street, Cardiff	1	0	0
Davies, D.	The Borough Stores, College Street, Swansea	1	1	0
*Davies, D. J.	Fir Grove, Morriston, Swansea ..	2	2	0
Davies, F. W.	Wesfra, Bishopston, Glam. ..	1	0	0
Davies, W.	Highfield, Llanelly	1	0	0

Subscriptions.

clxxxvii

Name	Residence	Subscriptions		
		£	s.	d.
Davis, E. K.	Little Stoke, Patchway, near Bristol	1	0	0
†Davis, H. J.	Sutton Montis, Sparkford, S.O., Somerset . . . . .	..	..	..
Davis, J.	Manor Farm, Hendon, Wells	1	0	0
Davis, & Co.	75, George Street, Oxford	1	0	0
Daw, J. E.	4, Louisa Terrace, Exmouth	1	1	0
Dawney, Major-Gen. G. F.	Longparish House, Whitchurch, Hants	1	0	0
Day & Sons (Ltd.)	Crewe	1	0	0
*†Debenham, E. R.	Morton House, near Dorchester . . . . .	..	..	..
Debenham, H.	Buckland House, Buckland St. Mary, Taunton	1	0	0
Demuth, R. H. . . . .	.. . . .	1	0	0
Dening, C. & Co.	Chard, Somerset	1	0	0
Dennis, S.	Latton, Cricklade, Wilts.	1	0	0
†Devas, H. G.	"Nizels," Hildenborough, Tonbridge . . . . .	..	..	..
Devenish, H. N.	Little Duntord, Salisbury	1	0	0
*Devon, The Earl of	Powderham Castle, Devon	2	0	0
Dickinson, W. F.	Kingweston, Taunton	1	0	0
Dickson & Robinson	Cathedral Street, Manchester	1	1	0
*Digby, (Capt., The Lord, D.S.O., M.C. (Coldstream Guards)	Minterne, Cerne Abbas	2	0	0
Digby, F. J. B. Wingfield	Sherborne	1	0	0
†Dobson, H. V.	Bath & County Club, Bath . . . . .	..	..	..
Dodington, R. M.	Horsington Park, Templecombe	1	1	0
Dormer, (Capt. C. W. C.	Rousham, Oxford	1	0	0
Dors, J. C.	Hunters Lodge, Wells	1	0	0
*Douglas, J.	Hanham Road, Kingswood, near Bristol	2	0	0
Down, H. E.	Middle Farm, Dinder, Wells	1	0	0
Drummond, (Col. F. D. W., C.B.E.	Cawdor Estate Office, Carmarthen	1	0	0
Drummond, Brig.-Gen. S. R. H. W.	Board Room, L.&S.W.R., Waterloo Station, London	1	0	0
Duchesne, M. C.	Farnham Common, Slough, Bucks	1	0	0
Duck, W. G.	Neadwood, Christon, near Exeter	1	1	0
Duckworth, Major A. C.	Orchardleigh Park, Frome	1	0	0
Dugdale, Major J. G.	The Abbey, Cirencester	1	0	0
Dugdale, W. M.	Llwyn, Llanfyllin	1	1	0
Duncan, R.	Rhose, near Barry	1	0	0
Dunlop, I. M.	Avonhurst, Sned Park, Bristol	1	0	0
*Durand, Lady	Hill House, Bridstow, Ross-on-Wye	2	2	0
Eagle Range and Gas Stove Company (Ltd.)	Catherine St., Aston, Birmingham	1	0	0

Name	Residence	Subscriptions		
		£	s.	d.
Eastwood, A. C.	Leigh Court, Taunton	1	0	0
*†Eastwood, J. E.	Wade Court, Havant .. ..	..	..	..
Eaton, G. T.	Thurston Hall, Framfield, Sussex	1	0	0
Economic Fencing Company (Ltd.)	Billiter House, Billiter Street, London, E.C.3.	1	0	0
Eden, R. H. H.	Heytesbury, Wilts	1	0	0
†Edgcombe, Sir Robert Pearce .. ..	.. ..	..	..	..
*Edge, S. F.	Gallops Homestead, Ditchling, Sussex	2	2	0
Edge S. F., Pig Farms (Ltd.), Pedigree Stock Farms	Coolham, Horsham, Sussex	1	0	0
†Edmondson, A.	Woodclose, Silverdale, Lancashire .. ..	..	..	..
Edmunds, L.	Cholderton, Salisbury	1	0	0
Edwards, A. P.	Gog's House, Wedmore, Somerset	1	1	0
Edwards, C. L. Fry	The Court, Axbridge, Somerset ..	1	0	0
Edwards, E. W.	Pevnor House, Cheshire, Berks. ..	1	0	0
Edwards, R. G.	Burrington Vicarage, Bristol	1	1	0
Edwards, W. H. G.	Butcombe Court, Wrington	1	0	0
*Edwards-Ker, Lieut.-Col. D. R., O.B.E., M.A.	Principal, Seale Hayne Agricultural College, Newton Abbot ..	2	0	0
Eldridge, Pope & Co.	Dorchester	1	0	0
Elliott, T. M.	Biddestone, Chippenham	1	1	0
Elton, B. A.	Clevedon Court, Somerset	1	0	0
Elwes, Lt.-Col. H. C., D.S.O., M.V.O.	Colesborne, Cheltenham	1	1	0
Elwes, P. F. C.	Somerton, Somerset	1	0	0
Emmet, Mrs. R.	Moreton Paddox, Moreton Morrell, Warwick	1	0	0
Errington, R.	Victoria Mills, Sunderland	1	0	0
Esdaile, C. E. T.	Cothelstone House, Taunton	1	0	0
*Eaplen, Sir John, Bart.	Hardres Court, Canterbury	2	0	0
Evans, E. W.	Crickleaze House, Chard	1	0	0
Evans, H. M. Glynn	Plasissa, Llangennech, Carmarthenshire	1	0	0
Evans, Thomas	Berkeley Villa, St. James's Garden, Swansea	1	0	0
Evans, Sir Walter, Bart.	Wightwick Hall, Wolverhampton	1	1	0
†Evan-Thomas, Commander A.	Caerwnnon, Builth Wells, R.S.O. ..	..	..	..
Evan-Thomas, Vice-Admiral Sir Hugh	Redlap House, Dartmouth	1	0	0
†Eve, Mr. Justice	Royal Courts of Justice, London, W.C.2. .. ..	..	..	..
Evelyn, Mrs.	Wotton House, near Dorking	1	0	0
Eyles, T. W.	Ashley Wood, Kingsdown, Pox, Wilts	1	1	0
Ezra, E.	Lock, Partridge Green, Sussex ..	1	0	0

Subscriptions.

clxxxix

Name		Residence	Subscriptions		
			£	s.	d.
*†Falmouth, Viscount	..	Tregothnan, Truro ..	..	..	..
Fane, Major H. N.	..	Boyton Manor, Codford, Wilts ..	1	0	0
†Farmer, S. W.	..	Little Bedwyn, Wilts ..	..	..	..
Farrow, E. J.	..	11, Nicholas Street, Bristol ..	1	0	0
†Farwell, Major E. W.	..	Hylton Estate Office, Kilmersdon, Bath ..	..	..	..
Fastnut, (Ltd.)	..	Beehive Wharf, Brentford, Middle- sex ..	1	1	0
Faudel-Phillips, Major H.	..	Stoney Ware, Marlow ..	1	0	0
Feaver, A.	..	Coal, Cake and Corn Merchant, Evercreech ..	1	0	0
Fenton, A. D.	..	Maristow, Roborough, S. Devon ..	0	10	0
Fenwick, M.	..	Abbotswood, Stow-on-the-Wold ..	1	1	0
*Ferguson-Davie, Sir W.J., Bt.	..	Creedy Park, Crediton ..	2	0	0
Ferrand, G. F.	..	Morland Hall, Alton, Hants ..	1	0	0
Fewtrell, O. J.	..	Estate Office, Wells ..	1	0	0
Finn, L. & G.	..	Westwood Court, Faversham, Kent	1	0	0
Fison, J. & Co.	..	Ipswich ..	1	0	0
*Fitzgerald, Lady	..	Buckland, Faringdon, Berks ..	2	0	0
Fitzwilliams, Col. E. C. L.	..	..	..	..	..
C.M.G.	..	Brynteifi, Pentrecourt, Llandyssul	1	0	0
Fletcher, Capt. A. M. T.	..	Margam Park, Port Talbot ..	1	0	0
Flower, A. A.	..	Crox Bottom Farm, Bishops- worth, Bristol ..	1	0	0
Flower, James	..	Chilmark, Salisbury ..	1	0	0
Flower, T.	..	Inns Court Farm, Bishopsworth, Bristol ..	1	0	0
*†Folkestone, Viscount	..	Longford Castle, Salisbury ..	..	..	..
*†Forester, Capt. F. W.	..	Saxilby Park, Melton Mowbray ..	..	..	..
Forster, J. C.	..	Clatford Mills, Andover ..	1	0	0
Fortune, R.	..	Newhouse, Cranleigh, Surrey ..	1	0	0
†Fortesque, J. B.	..	Broconnoc, Lostwithiel, Cornwall	..	..	..
Four Oaks Spraying Machine Co. (Ltd.)	..	Four Oaks Works, Sutton Cold- field ..	1	0	0
Fowler & de la Perrelle	..	Porter's Lane, Southampton ..	1	0	0
Fowler, J & Co. (Ltd.)	..	Leeds ..	1	0	0
Fox, Brothers & Co.	..	Wellington, Somerset ..	1	1	0
Fox, C. L.	..	Rumwell Hall, Taunton ..	1	0	0
Fox, Mrs. A.	..	Brislington House, near Bristol	1	0	0
†Fox, Robert	..	Grove Hill, Falmouth ..	..	..	..
Fox, R. A.	..	Yate House, Yate, Glos. ..	1	1	0
Foxcroft, C. T., M.P.	..	Hinton Charterhouse, Bath ..	1	1	0
Francis, Major O. L.	..	Downton, Salisbury ..	1	1	0
Freeman, T. R. & Sons	..	Monkton Combe Mills, Bath	1	1	0
*Fremlin, W. T.	..	Milgate Park, Maidstone ..	2	0	0
Frost, E. J.	..	Fountain Farm, Dulcote, Wells ..	1	0	0
Frost, W.	..	The Red House, Almondsbury, Glos. ..	1	0	0
Fry, A. M.	..	8, Zion Hill, Clifton, Bristol ..	1	1	0

Name	Residence	Subscriptions		
		£	s.	d.
Fry, Cecil	Grove House, Frenchay, Bristol..	1	0	0
Fry, C. A. H.	Ashton Lodge, Long Ashton, Bristol	1	0	0
Fry, H. A.	Monmouth Place, Bath	1	1	0
*Fry, J. S. & Son (Ltd.) ..	Union Street, Bristol	2	2	0
†Fuller, G. Pargiter	Neston Park, Corsham .. ..	..	..	..
*Fuller, Major R. F.	Great Chalfield, Melksham, Wilts	2	0	0
Fuller, Mrs. R. F.	Great Chalfield, Melksham, Wilts	1	0	0
Fuller, S & A.	Bath	1	0	0
Fursdon, E. S.	The Elms, Alphington	1	1	0
Gale, G.	The Grove, Winterbourne, near Bristol	1	0	0
Galloway, J.	Sharcombe Park, Dinder, Wells, Somerset	1	1	0
Gane, P. J.	Higher Rocke Farm, Butleigh, Glastonbury	1	0	0
Gantlett, W. R. & Son	Manor Farm, Fairford, Glos. ..	1	1	0
Gardiner, Sons & Co.	Nelson Street, Bristol	1	1	0
Garne, W.	Aldsworth, Northleach	1	1	0
Garne, W. T.	Aldsworth, Northleach	1	1	0
Garrett, W.	Backwell Hill House, West Town, R.S.O., Somerset	1	0	0
Garton, J. A.	Pytle Manor, Shepton Mallet, Somerset	1	0	0
Gazzard, M. H.	Saniger Farm, Sharpness, Berkeley	1	0	0
Genge, M.	Stop Farm, Fonthill Gifford, Tisbury	1	1	0
Gibbins, T.	Glynfelin, Neath	1	0	0
†Gibbons, H.	The Model Farm, King's Langley, Herts. .. ..	..	..	..
Gibbons, P. F., J.P.	Keynsham	1	1	0
Gibbs, A. H.	Pytte, Clyst St. George, Topsham, Devon	1	0	0
Gibbs, Mrs.	Pytte, Clyst St. George, Topsham, Devon	1	0	0
*†Gibbs, Lt.-Col. G. A., M.P.	Tyntesfield, Bristol .. ..	..	..	..
Gibbs, G. M.	Gratwicke Hall, Flax Bourton ..	1	0	0
Gibbs, Lt.-Col. W. O.	Chippenham	1	0	0
†Gibbs, H. M.	Barrow Court, Flax Bourton, Bristol .. ..	..	..	..
Gibson, J. T.	Warren House, Wington	1	1	0
Gifford, G.	Lyde Green, Pucklechurch, Bristol	1	1	0
Gill, F. C.	Westland, Farm, Challacombe, Devon	1	0	0
Gillingham, J. & Son	Prospect House, Chard	1	0	0
Gisborne, Col. L., C.M.G. ..	Lingen Hall, Brampton Bryan ..	1	0	0
*Gladstone, J.	Bowden Park, Chippenham .. ..	..	..	..

Name	Residence	Subscriptions		
		£	s.	d.
Glanely, Lord	The Court, St. Fagan's, Glam. ..	1	0	0
Glanville, F.	Poplar Farm, Westbury-sub-Mendip, Wells	1	0	0
Glenorcross, T.	The Paddocks, Stoke Gifford ..	1	1	0
Glover, J.	Cornwood, S. Devon	1	0	0
Glyn, Capt. Sir R. F., Bart.	The Cross House, Fontnell Magna, Shaftesbury	1	0	0
Godfrey, J. B.	Downside Farm, Shepton Mallet ..	1	0	0
†Godman, C. B.	Woldingfold, Horsham .. ..	..	..	..
Godman, J.	The Raswells, Hascombe, Godalming	1	0	0
Godwin, Warren and Co., (Ltd.)	140, Redcliffe Street, Bristol ..	1	0	0
†Goldney, Sir Prior, Bart., C.B.	Derriads, Chippenham .. ..	..	..	..
Goodchild, G. A.	The Oak House, Great Yeldham, Essex	1	1	0
Goodden, J. R. P.	Compton House, Sherborne ..	1	0	0
Goodman, A. & Sons	3, Hammett Street, Taunton, and Broad St. House, London, E.C.	1	0	0
*Gordon, Major R.G.S., M.C.	Langton House, Blandford ..	2	0	0
Gordon, G. H.	The Barn House, Sherborne ..	1	0	0
Goring, C.	Wiston Park, Steyning	1	0	0
†Gorringe, Hugh	Kingston-by-Sea, Brighton ..	..	..	..
Grace, A.	39, Welsh Back, Bristol	1	1	0
Graham-Clarke, Capt. J. E. H.	Frouston Manor, Stonehouse, Glos.	1	0	0
Grant-Ives, C. E.	Bradden House, Towcester, Northamptonshire	1	0	0
Grant, W. J.	Pentonville, Newport, Mon. ..	1	0	0
Gray, R.	The Estate Office, Sherborne ..	1	0	0
Greaves, R. M.	Wern, Portmadoc, North Wales ..	1	0	0
Green, A. W.	Stoke Abbey Farm, Stoke Bishop, Bristol	1	0	0
Green, E. A.	Cote Grange, Westbury-on-Trym, Bristol	1	0	0
†Green, Major H. L.	Fernside, West Derby .. ..	..	..	..
†Greenall, Mrs. C. E.	The Manor, Carlton Scroop, Grantham .. ..	..	..	..
†Greenall, Sir G., Bart.	Walton Hall, Warrington .. ..	..	..	..
Greenway, W.	Halse, Taunton	1	0	0
Greenwell, Sir B., Bart.	Marden Park, Woldingham, Surrey	1	0	0
Greenwood, J. C.	Westfield Farm, Bloomfield Road, Bath	1	0	0
Gregory, W.	Wellington, Somerset	1	1	0
Grey, E. T.	Cowley Farm, Kingweston, Bristol	1	0	0
Griffin, A.	Claverham House, Claverham, near Bristol	1	1	0
Griffin, L.	Manor Farm, Upton Cheyney, near Bristol	1	0	0

Name	Residence	Sub- scriptions		
		£	s.	d.
†Guest, Miss.	Inwood, Templecombe . . . . .	..	..	..
†Guest, Lady Theodora	Inwood, Templecombe . . . . .	..	..	..
Guest, H. M.	Keynsham, Bristol	1	0	0
*Guilford, Earl of	Waldershare Park, Dover	2	0	0
Guille, H. C. de Stevens	Westleigh House, Westleigh, near Bideford, N. Devon	1	0	0
Guisse, Sir W. F., Bart.	Elmore Court, Gloucester.	1	0	0
Gullick, W. F., F.R.H.S.	Waterloo Nursery, Salisbury	1	0	0
Gunther, C. E.	Tongswood, Hawkhurst, Kent	1	0	0
Habgood, G.	Harley Lodge, Wimborne	1	0	0
Hale, M. T.	Court Farm, Wookey, Wells	1	0	0
Hall, R. G.	Ferry House, Bere, Alston	1	0	0
*Hambleden, Viscount	Greenlands, Henley-on-Thames.	5	0	0
*Hambro, Sir E. A., K.C.V.O.	Hayes Place, Kent	2	0	0
Hambro, H. C.	The Lodge, Tadworth, Surrey	1	0	0
Hamilton, Capt. H. P.	Breinton, Hereford	1	0	0
Hancock, H. C.	The Court, Milverton, Taunton	1	0	0
Hancock, Mrs. R. D.	Halse, Taunton	1	0	0
Handcock, J. T.	57, Queen Charlotte Street, Bristol	1	0	0
Harbottle, E. H.	Topsham, Devon	1	0	0
Harding, A.	Sanigen, Berkeley, Glos.	1	0	0
Harding, E.	Parkwood Grange, Dorridge	1	0	0
Harding, E. G.	Foscote, Grittleton, Chippenham	1	0	0
Harditch, J. A.	Shipway Gate Farm, Portbury, Bristol	1	0	0
Hardwick, A.	Easton in Gordano, Bristol	1	0	0
Hardy, H. W.	Haycroft, Sherborne, Northleach	1	0	0
Hare, Lady K. F.	Brokenhurst Park, Hants	1	0	0
Harris (Calne), and the General Produce Co. (Ltd.)	55, Victoria Street, Bristol	1	0	0
Harris, H.	Singleton Park Farm, Sketty, S.O., Glam.	1	0	0
Harris, J.	Wistland Road, Kentisbury, North Devon	1	0	0
Harris, J. M.	Chilvester Lodge, Calne, Wilts	1	0	0
Harris, L. (Maskell-Harris Prize Crop Fertilizers)	17, New Broad St., London, E.C.2	1	0	0
Harrison, D.	The Grove, Tenby.	1	0	0
Harrison, McGregor & Co.	Leigh, Lancashire	1	0	0
Hart, W. H.	Home Farm, Biddestone, Chip- penham	1	0	0
Hartley, Major H. B.	Tytherington, Heytesbury, Wilts.	1	0	0
Haward, T. W.	Margam, Port Talbot, South Wales	1	1	0
Hawker, Capt. H. G.	Strode, Ermington, Ivybridge	1	0	0
Hawkins, A. W. Bailey	Stagenhoe Park, Welwyn, Herts.	1	0	0
†Haydon, Lt.-Col. W. H.	Maidford, Malmesbury, Wilts . . . . .	..	..	..

Name	Residence	Subscriptions		
		£	s.	d.
Hayes-Sadler, Mrs. A. F. ..	44, Curzon Street, London, W.1 ..	1	0	0
Hayes, F. J.	West Pennard, Glastonbury ..	1	0	0
Heathcoat-Amory, Sir I. M., Bart.	Hepsleigh, Tiverton, Devon ..	1	0	0
*†Henderson, Lieut.-Col. Hon. H. G.	Buscot Park, Faringdon, Berks ..			
Heneage-Vivian, Rear Admiral Walter	Pare le Breos, Penmaen, Glam. ..	1	0	0
Henry, Lt.-Col. F.	Elmstree, Tetbury.	1	0	0
Heppel, E. M.	Camerton, near Bath	1	1	0
Heseltine, Lt.-Col. J. E. N. . .	Hawking Down Farm, Hindon, Salisbury	1	0	0
Hesse, F. W.	Weston Hill, Weston Park, Bath	1	0	0
†Hewitt, G. Southby	Day, Son & Hewitt, 22, Dorset Street, London, W.1.			
Hick, W. A.	Wayfield, Batheaston, Bath ..	1	0	0
Hicks, R. S.	Wilbrahams Farm, Great Wilbrahams, Cambs.	1	1	0
Hicks-Beach, Lady Susan ..	Coln S. Aldwyn, Fairford, Glos. ..	1	0	0
Hickton, J. W.	Bellbroughton, Stourbridge ..	1	0	0
Higgins, B.	Millhouse Farm, Evercreech ..	0	10	0
Higgins, W. A.	11, York Street, Swansea. . . .	1	0	0
Hignett, G.	Hodshill, Southstoke, Bath ..	1	1	0
Hignett, Mrs. G.	Hodshill, Southstoke, Bath ..	1	1	0
†Hill, B. H.	Uphill, Weston-super-Mare ..			
Hill, H.	Paulton, near Bristol	1	1	0
Hill, C. L.	Harptree Court, East Harptree, near Bristol	1	0	0
Hill, S.	Langford House, Churchill, Bristol	1	0	0
Hill, Major V. T.	Woodspring Priory, near Weston- super-Mare	1	1	0
†Hinckes, Captain R. T. ..	Mansel Court, Mansel Lacey, Hereford			
Hippisley & Sons	Wells, Somerset	1	0	0
Hippisley, R. J. B.	Ston Easton Park, Bath	1	0	0
Hiscock, Victor	France Farm, Blandford	1	1	0
Hoare, E. S.	39, Broad Street, Bristol	1	1	0
†Hoare, Sir H. H. A., Bart. . .	Stourhead, Zeals, S.O., Wilts ..			
Hobhouse, A. L.	Hadspen House, Castle Cary, Somt.	1	0	0
†Hobhouse, R. A.	Pondmead, Oakhill, Somerset ..			
*Hobhouse, Rt.-Hon. H. ..	Hadspen House, Castle Cary ..	2	0	0
†Hoddinott, S.	Dean Vale, West Cranmore, Shepton Mallet			
Holford, Mrs. Gwynne ..	Buckland, Bwlch, Breconshire ..	1	0	0
Holland, J. H.	Peene House, Newington, Shorn- cliffe Camp, Kent	1	0	0
Holmes, J. V.	Penyfan, Llanelly, Carmarthenshire	1	1	0
Holt Needham, O. N. . . .	Barton Court, Colwall, nr. Malvern	1	0	0

Name	Residence	Subscriptions		
		£	s.	d.
†Holt Thomas G.	North Dean House, Hughendon, Bucks			
Hook, Brian	The Nook, Bloxham, Banbury . .	1	0	0
Hooley, Terah F.	Dry Drayton, Cambridge	1	0	0
Hooper, Bros.	Newburgh, Winfrith, Dorchester	1	0	0
†Horner, Sir J. F. Fortescue	Mells Park, Frome			
Horton-Starkie, Rev. Preb.				
Le G. G.	Wellow Vicarage, Bath	1	1	0
Hosegood, A. W.	Williton, Taunton	1	0	0
Hosegood, Obed., jun. . . .	Dillington, Ilminster	0	10	0
House, V. J.	Walcombe, Wells	1	0	0
Howard, A. H. S.	Thornbury Castle, Gloucester . .	1	0	0
Howard, J. & F.	Bedford	1	0	0
Howe, G.	Hunting Stables, Taunton	1	0	0
Huggett, O. W.	53, Corn Street, Bristol	1	1	0
†Hughes, A. E.	The Laurels, Bargates, Locominster			
Humphries, Sir Sidney, J.P.	Eastfield Lodge, Westbury-on- Tym, Bristol	1	1	0
†Hurle, J. C.	Kilve Court, Bridgwater			
Hurle, Major J. A. Cooke . .	Yarlington House, Wincanton . .	1	0	0
Hurst & Son	152, Houndsditch, London, E.1 . .	1	0	0
*Hussey, A. H.	Maincombe, Crewkerne	2	0	0
Hussey, T.	Manor Farm, Coxley, Wells	1	0	0
Hussey, Captain	Maincombe, Crewkerne	1	0	0
Hutton, K. M.	East Farm, Affiddle, Dorchester	1	1	0
Huxtable, J.	Alexandra Works, Barnstaple . .	1	0	0
†Hylton, Lord	Charlton, near Radstock			
*Ilchester, Earl of	Molbury, Dorchester	2	2	0
Iles, D.	Lyegrove, Badminton	1	0	0
Imbert-Terry, Capt. F. B. . .	Blue Hayes, Broadclyst, Devon . .	1	0	0
Imbert-Terry, Mrs. L. . . .	Blue Hayes, Broadclyst, Devon . .	1	0	0
Imperial Live Stock Insur- ance Co.	17, Pall Mall, East London, S.W. .	1	0	0
International Harvester Co. (Ltd.)	80, Finsbury Pavement, London, E.C.	1	0	0
Ireland, A. C.	Brislington Hill, near Bristol . .	1	1	0
*Ismay, J. H.	Iwerne Minster, Blandford, Dorset	2	0	0
Jackman, Percy	Pulteney Hotel, Bath	1	0	0
Jackson, Sir Henry Mather, Bart.	Llantillio Court, Abergavenny . .	1	0	0
James, Mark	Home Farm, Ston Easton, Bath . .	1	0	0
James, W.	10, Portland Street, Swansea . .	1	1	0
James, W. R.	Binegar, Bath	1	0	0
Jarman, T. M.	Haseley Iron Works, Tetworth . .	1	1	0

Subscriptions.

cxcv

Name	Residence	Subscriptions		
		£	s.	d.
Jenkins, D.	Flemingstone Court, Cowbridge, Glam.	1	0	0
Jenkins, E.	c/o F. Capern, Lewin's Mead, Bristol	1	0	0
Jenkins, T. E.	Kilvrough Home Farm, Park Mill, S.O., Glamorgan	1	0	0
Jenkins, Captain Vaughan	Stz Winifreds, Combe Down, Bath	1	0	0
Jenkins, W. A.	Tuxeds, Eaton Grove, Swansea	1	0	0
Jenks, Shirley H.	Elmore, Thorncombe, near Bristol	1	1	0
*Jersey, Earl of	Middleton Park, Bicester, Oxon.	2	0	0
†Jervoise, Mrs. B. A. L.	Herriard Park, Basingstoke . . . . .	..	..	..
Jervoise, F. H. T.	Herriard Park, Basingstoke	1	1	0
Jewell, Mrs. Eva	Henden Manor, Ide Hill, Seven-oaks, Kent	1	0	0
Jeyes' Sanitary Compounds				
Company	Cannon Street, London, E.C.4.	1	0	0
John, T. D.	The Hollies, Lisvane, Glam.	1	0	0
John, W. H.	High Street, Cowbridge, Glam.	1	0	0
Johns, W. B.	Clinton Estate Office, Dolton, N. Devon	1	0	0
*Johnstone, F. E.	Small Hythe, Tenterden, Kent	2	0	0
Johnstone, G. H.	Trewithen, Grampound Road, Cornwall.	1	0	0
Joicey-Cecil, Col. The Lord	Chute Lodge, Andover	1	0	0
Jones, A.	Bowcott Farm, Wotton-under-Edge, Glos.	0	10	0
Jones, E., J.P.	The Plas, Trimsaran, near Llanelly	1	0	0
Jones, E.	Penybont Farm, Sennybridge, Brecon	1	0	0
Jones, F. G.	Church Farm, Mitcheltroy, near Monmouth	1	0	0
†Jones, H. G.	Downford, Mayfield, Sussex . . . . .	..	..	..
Jones, T. S.	Frondez, Radyr, Cardiff	1	0	0
Jones & Son	Tolbury Mills, Bruton	1	1	0
Joyce, Rev. W. W.	Charles Parsonage, South Molton	1	0	0
Kay-Mouat, Miss K.	The Firs Farm, Malvern Wells	1	0	0
*Kearse, A. A.	Manor Farm, Latton, Cricklade, Wilts	2	2	0
Keeling, G.	North Hill Farm, Dunkerton, Bath	1	0	0
Keen, T. R. W.	Crannell Farm, Polsham, Wells	1	0	0
Keen, R. L.	Furlong Farm, Westbury-sub-Mendip, Wells	1	0	0
Keen, R. T.	Furlong Farm, Westbury-sub-Mendip, Wells	1	0	0
Kekewich, Sir T. H., Bart.	Peamore, Exeter	1	0	0

Name	Residence	Subscriptions		
		£	s.	d.
Kell & Co.	Gloucester	1	0	0
Kelly, Col. A. L.	Cadbury House, Wincanton, Somerset	1	0	0
Kelway, W.	Huish Episcopi, Langport	1	1	0
†Kemp, L. J.	Maer, Exmouth .. ..	..	..	..
Kendall, W. G.	Redworth, Totnes, S. Devon	1	0	0
Kennaway, Sir J., Bart.	Escot, Ottery St. Mary	1	0	0
Kenward, E.	Axford Lodge, near Basingstoke	1	0	0
*Keyser, C. E.	Aldermaston Court, Reading	2	0	0
Kidner, S., O.B.E.	Bickley, Milverton, near Taunton	1	0	0
Kidston, G.	Hazlebury, Box, Wilts	1	0	0
Killen, C. J.	Middle Farm, West Horrington, Wells	1	0	0
Killen, J. J.	Rood Farm, Butleigh, Glastonbury	1	0	0
Killen, R.	Manor Farm, Farrington Gurney, Bristol	1	0	0
King, Mrs. A. C.	Braishfield Pony Stud, Romsey, Hants	1	0	0
King, E. A.	Proudcross Farm, East Harptree, near Bristol	1	0	0
King, E. W.	Chew Magna, near Bristol	1	0	0
King, T.	Lower Barnes, Wotton-under-Edge, Glos.	1	0	0
King & Sons, R.	Milsom Street, Bath	1	1	0
Kingwell, H. J.	Bow Grange, Totnes	1	0	0
Knight-Bruce, R.	The Sanctuary, Shobrooke, Crediton	1	0	0
Knight, St. J.	Buckingham Lodge, Keynsham, Bristol	1	0	0
Knight, R. W. R.	Compton Dando, near Bristol	1	0	0
†Knollys, C. R.	Weekley, Kettering .. ..	..	..	..
Knox, E.	Richmond Grove, Bath	1	1	0
†Kruze, W.	St. Blazey, Par Station, Cornwall .. ..	..	..	..
†Lako, C.	Glenthorne, Gravesend .. ..	..	..	..
Lang-Coath, H.	Guildhall, Swansea	1	0	0
*Lansdowne, Marquis of	Bowood, Calne	2	0	0
Larkworthy, E. W.	Messrs. J. L. Larkworthy & Co., Worcester	1	1	0
†Latham, T.	The Limes, Westwood Road, Tile- hurst, Reading .. ..	..	..	..
Lander, J.	Lydney Park, Gloucester	1	1	0
Laurie, A. Dyson	Stone Street Farm, Sevenoaks	1	0	0
Laws, Algernon (Ltd.)	203, Hornsey Road, London, N.7	1	1	0
Lawton, W.	Kindatt, Penn Lea Road, Bath	1	0	0
Laye, Captain R.	The Warren, Wotton-under-Edge, Glos.	1	0	0

Name	Residence	Subscriptions		
		£	s.	d.
Lear, H. H.	Farms Office, Easton Park, Wickham Market, Suffolk	1	0	0
Leeder, E. H.	Mount Pleasant House, Swansea . .	1	0	0
Leitrim, Earl of	Court Lodge Farm, Teston, Maidstone	1	1	0
Lethbridge, Charles	Carlton Club, London, S.W. . . .	1	0	0
Leverton, W. A.	Columb John Farm, Stoke Canon, Exeter	1	0	0
Lewis, Col. H.	Green Meadow, near Cardiff	1	1	0
Lewis, Wm. & Son (Ltd.) . .	Herald Office, Bath	1	0	0
Lewis, W.	Langstone Court, Newport, Mon. . .	1	0	0
†Ley, John Henry	Trehill, Exeter . . . . .	..	
†Leyland, C. J.	Haggerston Castle, Beal, North- umberland . . . . .	..	
Liddell, Capt. C. O.	Shire Newton Hall, Chepstow	1	1	0
Liddon, E., M.D.	Silver Street House, Taunton	1	0	0
Lipscomb, Godfrey	Margam Park, Port Talbot	1	0	0
Lister, R. A. & Co. (Ltd.) . .	Dursley, Glos.	1	1	0
†Lister, J. J.	Falkland House, Lewes . . . . .	..	
Llewellyn, Capt. Llewellyn T. E.	Hackwood, Basingstoke	1	0	0
Llewellyn, Griffiths R. P. . .	Combend, Elkstone, Coles- borne, S. O.	1	0	0
*Llewellyn, Sir J. T. D., Bart.	Penllergaer, Swansea	2	2	0
Lloyd, Miss W. E.	Woodside Farm, Goring Heath, Oxon.	0	10	0
*†Long, Rt. Hon. Viscount . .	Rood Ashton, Trowbridge . . . .	..	
Long, Col. William	Newton House, Clevedon, Somerset .	1	0	0
Long, W. F.	Broadway House, Chilcompton, near Bath	1	0	0
Longrigg, G. E.	Weston Lea, Bath	1	0	0
Lopes, Sir H. Y. Buller, Bart.	Maristow, Roborough, Devon . . .	1	0	0
Lord Wandsworth Agricultural College	Long Sutton, Winchfield, Hant. . .	1	1	0
Loxton, A. H.	Croft Farm, Westbury-sub- Mendip, Wells	1	0	0
Loxton, J.	Hurn Farm, Wookey, Wells	1	0	0
Lucas, A. T. S.	Manor Farm, Cold Ashton, Marsh- field, Chippenham	1	0	0
Lucas, H. R.	Bonyalva, St. Germans, Cornwall	1	0	0
Luckes, S.	Bridge Street, Taunton	1	0	0
Ludlow, Lady	Luton Hoo, Luton	1	0	0
*Luff, J. Purnell	The Towers, Evercreech, Bath . . .	2	2	0
†Lupton, N. D.	Chalmington, Cattistock, Dorset . .	..	
Luscombe, B.	Bowden, Yealmpton, Devon	1	0	0
†Lutley, J. H.	Brockhampton, Worcester . . . .	..	
Luttrell, Major A. C. . . .	Lea Combe House, Axminster . . .	1	1	0

Name	Residence	Subscriptions		
		£	s.	d.
Luttrell, Capt. A. F.	.. Court House, East Quantoxhead, Bridgwater	1	0	0
Luttrell, Claude M. F.	.. Ben Mead, Box, Wilts ..	1	1	0
MacGregor, Brig.-Gen. W.	.. 2, Cavendish Crescent, Bath ..	1	0	0
Macdonald, H. L. S.	.. Avondale, Bathford, Bath ..	1	0	0
Macey, H.	.. Penn Park, Westbury-on-Trym, Bristol	1	0	0
Maddever, J.	.. Erth Barton, Saltash	1	1	0
Major, H. J. & C. (Ltd.)	.. Bridgwater	1	0	0
Malet, Col. Sir Harry	.. Wilbury, Newton Tony, Salisbury	1	0	0
†Mansell, A. E.	.. Mount Vernon, Melton Mowbray, Tasmania			
Mansfield, T.	.. Winterbourne Court, Winterbourne, Bristol	1	0	0
Mapstone, R. G.	.. Glastonbury	1	0	0
Marcus, M.	.. High Trees, Redhill, Surrey		0	0
Mardon, Lt.-Col. A. C.	.. Oakhayes, Woodbury, South Devon	0	0	
Marfell, R. H.	.. Great House Farm, Llangview, Usk	0	0	
Marshall, Edred	.. Sutton Road, Plymouth	1	0	
Marshall, H. C., C.C.	.. Wrington, Somerset	0	0	
Marshall, J. I.	.. Park Farm, Bath	0	0	
Marshall, L. H.	.. Chippenham	1	0	0
Marshall, Sons & Co. (Ltd.)	.. Britannia Iron Works, Gains- borough	1	0	0
Martin, Col.	.. Bishops Caundle, Sherborne ..	1	0	0
Martin, Mrs.	.. Bishops Caundle, Sherborne ..	1	0	0
Martin, J.	.. Thorverton, R.S.O., Devon ..	1	0	0
Martin, T. L.	.. Ashe Warren, near Basingstoke ..	1	0	0
Martin, W. P.	.. Colleton, near Chulmleigh ..	1	0	0
Martyn, G.	.. Tremeddan, Liskeard, Cornwall ..	1	1	0
Mason, F. F.	.. Swansea	1	0	0
Massey-Harris Co. (Ltd.), (G. W. Dawkins, General Manager)	.. 54 & 55, Bunhill Row, London, E.C.1	1	0	0
Masters, A.	.. Kyneton, Thornbury, Glos. ..	1	0	0
Mathews, Ernest	.. Little Shardeloes, Amersham, Bucks	1	0	0
Matthews, H.	.. Winterbourne, Bristol	1	0	0
Maunder, J.	.. Kingweston, Somerton	1	0	0
Maunder, L. T.	.. Butleigh, Glastonbury	1	0	0
May, E. Howard, o/o May and Hassell (Ltd.)	.. Baltic Wharf, Bristol	1	0	0
Meaker, W.	.. Charlton Mackrell, Taunton ..	1	0	0
Meddick, William G.	.. 11, Great Stanhope Street, Bath	1	0	0
Membery, R.	.. 37, Southgate Street, Bath ..	1	0	0
Merry, Richard	.. Goulds, Broadclyst, Exeter ..	0	10	0

Subscriptions.

cxcix

Name	Residence	Subscriptions		
		£	s.	d.
Merson, T. H. . . .	Faringdon, N. Petherton, Bridgewater	1	0	0
*Methuen, General Lord, C.B., C.M.G. . . .	Corsham Court, Wilts	2	0	0
*Methuen, Hon. Paul	Beanacre Manor, Melksham	2	0	0
Mildmay, Capt. C. B. St. J. . . .	Hallam, Dulverton	1	0	0
*Mildmay, Lieut.-Col. The Right Hon. F. B., M.P. . . .	Flete, Ivybridge, S. Devon	2	2	0
†Mildred, G. B. . . .	. . . . .	. . . . .	. . . . .	. . . . .
†Miles, Lieut.-Col. Sir Charles W., Bart	The Manor House Walton-in-Gordano, Clevedon . . . .	. . . . .	. . . . .	. . . . .
Miles, H.	Auctioneer, Farrington Gurney, Bristol	1	0	0
Millard, A. A.	Pearash Farm, Penselwood, Bourton, Dorset	1	0	0
Millard, F. J.	Bridge Farm, Butleigh, Glastonbury	1	0	0
Millen, O. C.	Adisham Court, Canterbury, Kent	1	0	0
Miller-Hallett, A.	Goddington, Chelsfield, Kent	1	1	0
Mills, B. W.	31, Cambridge Place, Paddington, London, W.	1	0	0
Mitchell, Major F. A. . . .	Doughton House, Tetbury, Glos. . . .	1	0	0
Mitchell, T. E.	Tan House, Bromyard, near Worcester	1	1	0
Modern Farming	Montague House, Russell Square, London, W.C.1.	1	0	0
Mogg, B. D.	Cherry Orchard Farm, Wells	1	0	0
Molassine Co. (Ltd.)	East Greenwich, London, S.E. . . .	1	0	0
Mond, Sir Alfred	Melchet Court, Romsey	1	0	0
Moody, C.	Maisemoor, Evercreech	1	0	0
Moody, G. W.	Stapleton, Martock, Somerset	1	0	0
Moore, G.	Paradise Farm, Coxley, Wells	1	0	0
†Moore, H. F.	Renée House, 48, Dulwich Road, Herne Hill, S.E.24 . . . .	. . . . .	. . . . .	. . . . .
Moore, M. H.	The Hellyers, Ipplepen, Newton Abbot	1	1	0
Moore-Gwyn, J. E. . . .	Duffryn, Neath, Glamorgan	1	0	0
†Moore-Stevens, J. R. C. . . .	Woodhayes, Whimble, Devon . . . .	. . . . .	. . . . .	. . . . .
Moore-Stevens, Col. R. A. . . .	Woodhayes, Whimble, Devon	1	0	0
Morant, Trustees of John	Brokenhurst Park, Brokenhurst, Hants	1	0	0
Morel, C. E. . . . .	. . . . .	1	0	0
Morland, J. C.	The Orchard, Street, Somerset	1	0	0
*Morley, Earl of	Saltram, Plympton, Devon	2	0	0
*Morris, C.	Highfield Hall, St. Albans	3	0	0
Morris and Griffin (Ltd.)	Maindee, Newport, Mon. . . .	1	1	0
Morris, Sir R. A. Bart. . . .	Sketty Park, Swansea	1	0	0
Morris, Son and Peard	Auctioneers, North Curry, Taunton	1	0	0
Morrison-Bell, Col. E. F. . . .	The Close, Tetbury, Glos. . . .	1	0	0

Name	Residence	Subscriptions		
		£	s.	d.
*†Morrison, Hugh, M.P. ..	Fonthill House, Tisbury, Wilts ..		0	
Morrison, Major J. A., D.S.O.	Berwick House, Hindon, Salisbury	1	0	0
†Morrison, J. A.	Basildon Park, Reading			
Mortimer, Capt. A. E. ..	Wall's Court, Stoke Gifford, near Bristol			
Mortimer, Major M. W. ..	Longleat Estate Office, Warminster	1	0	0
Mount-Edgumbe, Earl of ..	Mount Edgumbe, Devonport ..	1	1	0
*Munn, F. S.	Dumballs Road, Cardiff	2	0	0
Muntz, Mrs. J. O.	Foxhams, Horrabridge, S. Devon	1	1	0
Murch, J.	Charlton Mackrell	1	0	0
Murray Smith, Hon. Mrs. ..	Gumley Hall, Market Harborough	1	0	0
Nagle, J.	Pamber Place, Charter Ley, Basingstoke	1	1	0
Napier, H. B.	Ashton Court Estate Office, Long Ashton, Bristol	1	1	0
Neagle, D. T... ..	London, Gloucester and N. Hants Co. (Ltd.), 25, Whatley Road, Clifton, Bristol	1	0	0
Neal, Mrs. G... ..	Kingsdon, Taunton	1	1	0
Neale, Hastings	Berkeley, Glos.	1	0	0
Neeld, Sir A. D., Bart., C.B... ..	Grittleton, Chippenham	1	0	0
Nelder, C. W.	Carnarvon Arms, Dulverton, Somerset	0	10	0
†Neville, Lieut.-Commander Ralph, R.N.	Butleigh, Glastonbury			
†Neville-Grenville, Robert ..	Butleigh Court, Glastonbury ..			
New, H. G.	Craddock, Cullompton, Devon ..	1	0	0
Newall, R. S... ..	Fisherton de la Mere, Wyle, Wilts	1	1	0
Newington, C.	Oakover, Ticehurst, Sussex ..	1	0	0
Newman, Sir R. H. S., Bart., D.L., M.P.	Mamhead Park, near Exeter ..	1	1	0
Nicholletts, E. C.	The Lons, Bitton, Gloucestershire	1	0	0
Nichols, G.	Demarara House, Colston Avenue, Bristol	1	0	0
Nicholson, R. F.	Woodcott, Whitechurch, Hants ..	1	0	0
Nix, J. A.	Tilgate, Crawley, Sussex	1	1	0
Nixon, W.	The Cottage, Offchurch, Leamington	1	0	0
*Normanton, Earl of	Somerley, Ringwood	2	0	0
Northey, G., J.P.	Cheney Court, Box, Wilts	1	0	0
*Northumberland, Duke of..	Albury Park, Guildford	2	0	0
Nurse, F. G.	Wick Farm, Coxley, Wells	1	0	0
Nutt, Mrs. H. J.	Hampton House, Hampton-in-Arden, Warwick	1	0	0
Oakes, Mrs. W.	Graslawn House, Exeter	1	1	0
†O'Hagan, Lord	Pyrgo Park, Havering Atte Bower, Romford, Essex			

Name	Residence	Subscriptions		
		£	s.	d.
O'Halloran, Miss P.	Fairwood Lodge, Killay, Glam. . .	1	0	0
Ontario, Agent General for (W. C. Noxon)	163, Strand, London, W.C.2. . .	1	0	0
*†Oppenheimer, Sir B., Bart.	Sefton Park, Stoke Poges, Bucks. . .	..	..	..
Osmond and Son	Grimsby	1	0	0
Paddison, W. P.	Research Department, Royal Arsenal, Woolwich, London, S.E.18	1	0	0
Paget, L. C.	Middlethorpe Hall, Yorks	1	0	0
*Paget, Sir Richard, Bart. . .	74, Strand, London, S.W.1	2	0	0
Palmer, A.	Land Agent, Wells	1	0	0
†Palmer, R.	Lodge Farm, Nazeing, Waltham Cross, Essex . . . . .	..	..	..
Palmer, W. H.	York Buildings, Bridgwater	1	0	0
Palmer, W. Howard.	Heathlands, Wokingham, Berks . .	1	0	0
Palmer, Mrs. W. Howard . . .	Heathlands, Wokingham, Berks . .	1	0	0
†Parker, Hon. Cecil T.	The Grove, Corsham, Wilts . . . .	..	..	..
Parker, F. J.	Plymouth Street, Swansea	1	0	0
Parmiter, P. J. & Sons	Tisbury, Wilts	1	0	0
Parry-Okeden, Lieut.-Col U. E. P.	Turnworth, Blandford	1	0	0
†Parsons, J. D. Toogood	Grasmere, East Hoathley, Sussex . .	..	..	..
†Parsons, R. M. P.	Misterton, Crewkerne . . . . .	..	..	..
Parsons, F. W.	Speckington, Ilchester	1	0	0
Parsons, J.	The Lons, Portishead	1	0	0
Pass, Captain A. D.	Manor House, Wootton Fitzpaine, Charmouth, Dorset	1	0	0
Patey, Rev. C. R.	Stowford House, Ivybridge	1	1	0
Pawlyn, J. H. W.	Messrs. Ransomes, Sims & Jefferies (Ltd.), Orwell Works, Ipswich . .	1	0	0
Peacock, W.	3, Buckingham Gate, London . . .	1	1	0
Pearce, C. E.	Sea Mills Farm, near Bristol	1	0	0
Pearce, F. W.	Kingweston, near Bristol	1	0	0
Pearce, E.	Parsonage Farm, Long Ashton, Bristol	1	0	0
Pearce, H. J.	Grange Farm, Portishead	1	0	0
Pearce, J.	Parsonage Farm, Long Ashton, Bristol	1	0	0
Pearce, T. H.	Parsonage Farm, Long Ashton, Bristol	1	0	0
Pearson, Major the Hon. Harold	Cowdray Park, Midhurst, Sussex . .	1	0	0
Peel, Major E. Morton	St. Leonards, Langland, near Swansea	1	0	0
Peel, Viscount	52, Grosvenor Street, London, W. .	1	1	0
Penberthy, Professor J.	Dean Hall, Newnham, Glos.	1	0	0

Name	Residence	Subscriptions		
		£	s.	d.
*Pender, Major H. Denison, D.S.O.	Strangeways, Marnhull, Dorset . .	2	0	0
Pendarves, W. Cole	Pendarves, Camborne, Cornwall . .	1	1	0
Pepper, W. F.	New Redlynch Farm, Bruton . .	1	0	0
Perfect Patents Company . .	195, High Street, Brentford, Middlesex	1	0	0
Perkins, Col. E. K., M.P. . .	Shales, Bitterne, Hants	1	1	0
Petherick, R., jun.	Acland Barton, Landkey, Barn- staple	0	10	0
Petters (Ltd.)	Yeovil	1	0	0
Pettifer, T. & Co.	Eydon, Banbury	1	0	0
Peyton, E. P.	Woodcote Lodge, Kenilworth . .	1	0	0
Phillips, F.	Nantcoch, Newport, Mon. . . .	1	1	0
Phillips, Sir L. R. . . . .	. . . . .	1	1	0
Phipps, C. B. H.	Chalcot, Westbury, Wilts . . .	1	0	0
Phipps, Hornby, Capt. . . .	Somerton, Somerset	1	0	0
Pierce, E. T.	West Wood Farm, Filton, Glos. .	1	0	0
Piggott, Brothers & Co. . . .	220, 222, 224, Bishopsgate Street, Without, London, E.C.	1	0	0
Pike, C. A.	Chilean Nitrate Committee, Friar's House, 39-41, New Broad Street, London, E.C.2	1	0	0
Pinkstone, C. G. (Pinkstone Ltd.)	24, Church St., Temple, Liverpool	1	0	0
†Pinney, R. W. P.	Somerton, Somerset . . . . .	..	..	..
Pitt, W.	The Albynes, Bridgnorth . . .	1	0	0
Playle, A.	Bassingbourne, Royston, Herts .	1	0	0
Plumptre, H. F.	Goodnestone, Dover	1	0	0
*Plymouth, Earl of	Hewell Grange, Bromsgrove . .	4	0	0
*Poltimore, Lord	Court Hall, North Molton, Devon	2	2	0
Ponting, R.	Dulcote, Wells	1	0	0
Pool, D. and F.	Down Barns Farm, West End, Northolt, Uxbridge	1	0	0
Poole, Mrs. A. R.	King's Hill, Dursley	1	0	0
Poore, Capt. J.	Estate Office, Badminton, Glos. .	1	0	0
Pope, Alfred	Dorchester	1	0	0
Pope, A.	Henstill, Sanford, Crediton . .	1	0	0
Pope, John	Nowers, Wellington, Somerset .	1	0	0
Popham, H. L.	Hunstrope House, Pensford, Bristol	1	0	0
Portal, Maurice R.	Holywell, Swanmore, Hants . .	1	0	0
Porter, W. J. H.	Glendale Farm, Wedmore . . .	1	0	0
†Portman, Viscount	Buxted Park, Uckfield, Sussex .	..	..	..
Portman, Vicountess	Buxted Park, Uckfield, Sussex .	1	0	0
Portsmouth, Earl of	Barton House, Morchard Bishop, Devon	1	0	0
Powell, G. E.	5, Henley Grove, Westbury-on- Trym, Bristol	1	0	0
Powell, Mrs. G. E.	5, Henley Grove, Westbury-on- Trym, Bristol	1	0	0

Subscriptions.

ccliii

Name	Residence	Subscriptions		
		£	s.	d.
Powell, G. F.	10, Beaufort West, Bath	1	0	0
Pratt, A. T.	Morston House, Trimley, Ipswich	1	0	0
Preston-Jones, A.	Mickleover House, near Derby	1	1	0
Preston-Jones, J.	Rushbury, Winchcombe	1	1	0
Price, J. H.	Higher Hill Farm, Butleigh, Glastonbury	1	0	0
Price, Owen	Nantyrharn, Cray, Brecon	1	0	0
Price, W. S.	Nantymadog, Cray, Brecon	1	0	0
Prichard, H. L.	Penmaen, R.S.O., Glam... ..	1	0	0
Prideaux, W. R.	Fenswood, Farm, Long Ashton, Bristol	1	0	0
Pritchard, D. F., J.P.	Crumlin Hall, Crumlin, Mon.	1	1	0
Pritchard, W. A.	Brentmoor, Brent, South Devon	1	0	0
Proctor, H. & T. (Ltd.)	Cathay, Bristol	1	1	0
Proudfoot, W.	Woodbourne House, Shepton Mallet	1	0	0
Pullen, J. W... ..	Compton Greenfield, Bristol	1	0	0
†Purgold, A. D. .. ..	.. ..	..	..	..
Pursey, E.	Bailey's Court, Stoke Gifford, near Bristol	1	0	0
Pursey, J. H. R.	Belle Vue, Filton, near Bristol	1	0	0
Pyke, C. C.	Capel Leyse, Holmwood, Surrey	1	1	0
*Pyman, Sydney	Pigeon House, Ross-on-Wye	2	0	0
Quested, J. E.	Cheriton, Kent	1	0	0
Quilter, Sir Cuthbert, Bart.	Bawdsay Manor, Woodbridge	1	0	0
Radcliffe, Wynham Ivor	Druidstone, near Cardiff	1	0	0
*†Radnor, Earl of	Longford Castle, Salisbury .. ..	..	..	..
Rawlence, Ernest A.	St. Andrew's, Salisbury	1	0	0
Rawlence, G. Norman	Salisbury	1	1	0
†Rawlence, Capt. N., D.S.O.	Salisbury .. ..	..	..	..
Rea, F. H.	Kite's Nest Farm, near Wotton-under-Edge, Glos.	1	0	0
Reakes, O. O.	Masters Farm, Emborough, Bath	1	0	0
Reeves, Robert and John, and Son	Bratton Iron Works, Westbury, Wilts	1	0	0
Rennie, J. H... ..	Tregarn, Langstone, Newport, Mon	1	0	0
Reynolds, Sylvanus	Corndean Hall, Winchcombe, Glos.	1	0	0
Richardson, Capt. A.	Seven Springs, Cheltenham	1	0	0
Richardson, Rev. A... ..	Bath and County Club, Bath	1	0	0
Ridge, Capt. R. T.	The Manor Farm, Brockley, West Town, near Bristol	1	0	0
Riley, J. L. & A.	The Iwerne, near Ledbury	1	0	0
Roberts, C. M.	16, Alfred Street, Bath	1	0	0

Name	Residence	Subscriptions		
		£	s.	d.
Robins, O. T. and A. F. ..	Lidcott Hall, High Bray, South Molton	1	0	0
Robinson, E. S. & A. (Ltd.) ..	Redcliffe Street, Bristol	1	1	0
Robinson, John & Co. ..	Bristol	1	1	0
Rogerson, R. W. (Ward & Co., Seedsmen)	Northgate Street, Bath	1	0	0
Rolleston, S. V. ..	Saltford House, Saltford, Bristol ..	1	0	0
Roundway, Lord ..	Roundway Park, Devizes ..	1	1	0
Rouse-Boughton, Sir W. St. A., Bart.	Downton Hall, Ludlow	1	0	0
Rouse-Boughton, Lady ..	Downton Hall, Ludlow	1	0	0
Rowcliffe, E. L. ..	Stovolds Hill, Cranleigh, Surrey ..	1	1	0
Rowcliffe, E. H. L. ...	Stovolds Hill, Cranleigh, Surrey ..	1	0	0
Rowcliffe, H. S. ..	Kew Lodge, Kew Road, Weston-super-Mare	1	0	0
Rowett, J. Q. ..	Ely Place Estate Office, Frant, Sussex	1	0	0
Rowland, P. S. ..	The Laurels, Llangenneth, Reynoldston, S.O., Glam.	1	0	0
Royal Guernsey Agricultural and Horticultural Society	Guernsey	1	0	0
Rubeck, O. P. ..	"Valencia," Meath Green, Horley, Surrey	1	0	0
Rudd, Mrs. ..	Felbridge Park Farm, East Grinstead, Sussex	1	0	0
Russell, G. ..	North Hill Farm, Dundry, near Bristol	1	0	0
Russell-Smith, A. ..	North Houghton Manor, Stockbridge, Hants	1	0	0
Ruston & Hornsby (Ltd.) ..	Grantham	1	0	0
Rutherford, J. A. ..	Highclere Estate Office, Newbury, Berks	1	0	0
†St. Audries, Lord ..	St. Audries, Bridgwater .. ..	..	..	..
*St. Germans, Earl of ..	St. Germans, Cornwall	2	0	0
†Salmon, H. C. ..	North Field, Bridgwater .. ..	..	..	..
Salter, Benjamin ..	Newlands, Broadclyst, Exeter ..	1	0	0
Salter, T. ..	Beare Farm, Broadclyst, Exeter ..	1	0	0
Samels, J. W. ..	Perfect Dairy Machines (Ltd.), 105, Middle Abbey Street, Dublin ..	1	0	0
Samuelson, Ernest ..	Bodicote Grange, Banbury ..	1	1	0
Sanders, Right Hon. Lt.-Col. Sir R. A., Bart., M.P. ..	Bayford Lodge, Wincanton ..	1	0	0
Sanford, Col. E. C. A., C.M.G.	5, Ennismore Gardens, S. Kensington, London, S.W.7	1	0	0
Sankey, R. I. ...	South Hill, Hastingleigh, Ashford, Kent	1	0	0

Subscriptions.

CCV

Name	Residence	Sub- scriptions		
		£	s.	d.
Sawtell, G. H.	Kingweston, Taunton	1	0	0
Sayers, Messrs.	Groundwell Manor, Blunadon, Swindon	1	0	0
Scott, L. I.	Somerleaze, Wells	1	0	0
†Scott, T. .. ..	.. .. .	..	..	..
Scutt, F. G.	218, Cheltenham Road, Bristol ..	1	1	0
†Seaton, Lord	Buckland Abbey, Yelverton, Devon ..	..	..	..
Senior and Godwin	Auctioneers, Sturminster Newton, Dorset	1	1	0
Shaw, Col. F. S. Kennedy C.B.E.	Teffont Magna, Salisbury	1	1	0
†Shaw-Stewart, Walter R. ..	Hayes, Shaftesbury .. ..	..	..	..
Sheldon, R. F.	West Street House, Wells	1	0	0
Shellabear, G. G.	Mount Tavy, Tavistock	1	1	0
*Shelley, Sir John, Bart. ..	Shobrooke Park, Crediton	2	2	0
*Shelley, J. F.	Posbury House, near Crediton ..	2	2	0
Shelley, Mrs. J. F.	Posbury House, Crediton	1	0	0
Sheppard, P. C. O.	Dunraven Estate Office, Bridgend, Glam.	1	1	0
†Sherston, C. J. T.	Harewood, Leeds .. ..	..	..	..
*Sidmouth, Viscount	Upottery Manor, Honiton	2	0	0
Silcock, R. & Sons	Stanley Hall, Union Street, Liverpool	1	0	0
*Simpson, Charles (Hew- thorn & Co.)	7, Lambs Passage, Chiswell Street, London, E.C.1	2	0	0
Simpson, F. C.	Maypool, Churston Ferrers, R.S.O., S. Devon	1	0	0
*Singer, W. M. G.	42, Charles Street, Berkeley Square, London, W.1	2	0	0
Skinner, G. C.	Pound, Bishops Lydeard	1	0	0
Skinner, Board & Co.	Exmoor Street, Bristol	1	0	0
Skinner, W. J.	The Laurels, Weare, Somerset ..	1	0	0
Slade, L. W.	Sheffield Lodge, Westbury-on- Trym, Bristol	1	0	0
Smart, G. E.	Combe Hay Manor, Bath	1	1	0
Smith, A. Carlyle	Sutton Hull, Woodbridge, Suffolk ..	1	0	0
Smith, D.	Court Farm, Stoke Gifford, near Bristol	1	0	0
Smith, A. J. (Ltd.)	9, Queen's Road, Bristol	1	0	0
Smith, H. C.	9, Union Terrace, Plymouth	1	0	0
Smith, J.	Monkton, Hereford	1	0	0
†Smith, S. Lee	Larkfield, Maidstone .. ..	..	..	..
Smyth, Hon. G. N.	Ashton Court, Bristol	1	0	0
Smyth, Hon. Mrs.	Ashton Court, Bristol	1	0	0
Smyth-Richards, G. C.	Filleigh Lodge, South Molton ..	1	0	0
*Somerset, Duke of	Maiden Bradley, Bath	2	0	0
Somerset Trading Co. (Ltd.)	Bridgewater	1	1	0

Name	Residence	Subscriptions		
		£	s.	d.
†Somerville, A. F.	Dinder House, Wells, Somerset . .			
Southwood, J. W. C.	1, St. Peter's Terrace, Twerton, Bath	1	0	0
Sparks, H. Weston	Oakcliff, Dawlish	1	1	0
Spear Brothers and Clark (Ltd.)	Southgate Street, Bath	1	0	0
†Spearman, Sir J. L. E., Bart. . . . .	. . . . .		
Speed, Capt. D. C. L.	Knowlton Court, near Canterbury	1	1	0
Speed, G.	Grove Farm, Chewton Mendip, Bath	1	0	0
Spencer, H. G.	Southill House, West Cranmore, Somerset	1	0	0
Spencer, W. C.	Bushley Park Farm, Tewkesbury	1	0	0
Spicer, Capt.	Spye Park, Chippenham	1	0	0
Spicer, Lady M.	Spye Park, Chippenham	1	0	0
Spiller, T. R.	Luccombe, Milton Abbas, Bland- ford	1	0	0
Spillers and Bakers (Ltd.) . .	Redcliffe Back, Bristol	1	1	0
Spratts' Patent (Ltd.)	24 and 25, Fenchurch Street, City, London, E.C.3	1	0	0
Spurrier, H.	Stype Grange, Hungerford, Berks	1	0	0
Stallard, A. E.	Burgate, Fordingbridge, Hants. . .	1	0	0
Stallard, H.	Burgate, Fordingbridge, Hants. . .	1	0	0
*†Stanley, E. A. V. . . . .	. . . . .		
Stephens, T. A.	Hookstile House, South Godstone, Surrey	1	0	0
†Stern, Sir Edward D. L. . . .	Fan Court, Chertsey			
Stevens, R. N.	Woodham Hall, Woking, Surrey	1	0	0
Stevenson, J. K. H.	The Chase, Upper Welland, Mal- vern Wells	1	0	0
Stephenson and Alexander . . .	Auctioneers, Cardiff	1	1	0
Stewart, Rev. H. J.	The Vicarage, Cockett, Glamorgan	1	0	0
Stilgoe, H. W.	The Grounds, Adderbury, near Banbury, Oxon.	1	0	0
Stirling, Mrs.	Trym Bank, Combe Dingle, near Bristol	1	0	0
Stirling, B. W.	Trym Bank, Combe Dingle, near Bristol	1	0	0
Stoddart, F.	The Denny, Portishead, Somerset	1	1	0
Stoffell, W. M.	Fairfield, Newbridge Hill, Bath . .	1	1	0
Stonehouse Works Co.	Spon Lane Mills, Houghton Street, West Bromwich	1	0	0
Storey, H. L.	The Manor House, Malmesbury . .	1	0	0
Storror, J. I.	Tredegar Estate Office, Newport, Mon.	1	0	0
Stothert, Sir P. K., K.B.E. . .	1, Lansdown Place, West, Bath . .	1	0	0
Stott, A. M.	Hurn Farm, Wookey, Wells	1	0	0
Stott, F. J.	Wellesley Farm, Wells	1	0	0

Subscriptions.

ccvii

Name	Residence	Sub- scriptions		
		£	s.	d.
†Strachie, Lord	Sutton Court, Pensford, Somerset	..	..	..
†Strachey, Lt.-Col. the Hon. E.	Sutton Court, Pensford, Somerset	..	..	..
Strafford, Earl of	Dancers Hill, Barnet	1	1	0
Strangways, Miss S... ..	Shapwick, Bridgwater	1	1	0
Stratton, Richard	The Duffryn, Newport, Mon. ..	1	0	0
Strauss, E. A., M.P... ..	Kingston Bagpuize, Abingdon, Berks.	1	0	0
Strawson, G. F., jun.	St. Andrew's Works, Horley, Surrey	1	0	0
Stride, T.	Stanley House, Camden Road, Bath	1	0	0
Strode, G. S. S.	Newnham Park, Plympton	1	0	0
Stucley, H. V. G.	Pillhead, Bideford, North Devon	1	0	0
Studdy, T. E.	Broxton, Paignton	1	0	0
Studley, J. Im.	Toller Fratrum, Maiden Newton	1	0	0
Sutherland, R. W. J.	Gadairwen, Croesfaen, Glam. ..	1	0	0
*Sutton, E. P. F.	Sidmouth Grange, near Reading	2	2	0
*Sutton and Sons	Seedsmen, Reading	2	2	0
Swansea, Lord	Glanogwr, Bridgend, Glam. ..	1	0	0
Swanwick, Bruce	The Road House, Rodborough Common, Stroud	1	0	0
Symons, J. & Co. (Ltd.) ..	The Plains, Totnes	1	1	0
Tagart, Major-Gen. Sir H., K.C.M.G., C.B., D.S.O. ..	Northcote Manor, Chulmleigh, N. Devon	1	1	0
Talbot, G. R... ..	Baltonsborough, Glastonbury ..	1	0	0
Tangyes (Ltd.)	Cornwall Works, Birmingham ..	1	0	0
Tanner, R.	New House, Kingston Bagpuize, near Abingdon, Berks	1	1	0
Tapp, David James	Knaplock, Winsford, Dulverton..	1	0	0
Tasker W. & Sons (Ltd.) ..	Waterloo Ironworks, Andover ..	1	1	0
Tate, J. A.	Fairfield, Wells, Somerset	1	0	0
Tavener, G. E.	Budlake, Devon	1	0	0
Taylor, A. H. W.	8, New Bond Street, Bath	1	1	0
Taylor, E.	Red House, Bath	1	1	0
Taylor, E. J.	Penarth Lodge, Julian Road, Sneyd Park, Bristol	1	0	0
†Taylor, George	Cranford, Hounslow, W. .. ..	..	..	..
Taylor, L. Acland	City Librarian, Central Library, Bristol	1	0	0
†Tazewell, W. H.	Manor House, Taunton .. ..	..	..	..
*†Temple, Earl	Newton St. Loe, Bristol .. ..	..	..	..
Terry, G. A.	Wessex Villa, Odiham, Hants ..	1	0	0
Thomas, A. O.	Kilvrough, Gower, Glamorgan ..	1	0	0
Thomas, Capt. L. B.	Great Brampton, Madley, Hereford	1	1	0
Thomas, Sir Griffith	Court Herbert, Neath	1	0	0
Thomas, I.	Ely Farm, Cardiff	1	0	0
*Thomas, J.	Velindre, Kidwelly, Carmarthen- shire	2	0	0

Name	Residence	Subscriptions		
		£	s.	d.
Thomas, J. H.	Cudleigh Court, Spetchley, Worcester	1	0	0
Thomas-Stanford, C... ..	Preston Manor, Brighton.. ..	1	0	0
Thomas & Evans & John Dyer (Ltd.).. ..	Swansea	1	0	0
*Thompson, Major J. C. ..	The Vicarage, Stratton St. Margaret, Swindon	2	2	0
Thompson, F. W. E., Wolsley Sheep Shearing Machine Co.	Alma Street, Birmingham . . .	1	1	0
Thompson, V. T.	Norton Manor, Sutton Scotney, Hants	1	0	0
Thorne, J. G... ..	Horridge, Romansleigh, S. Molton	0	10	0
Thornton, W. A.	Lock, Partridge Green, Sussex ..	1	1	0
Thresher, E. B.	Corfe Hill, Weymouth	1	0	0
Thring, Sir Arthur T. ..	Charlton House, Charlton Mackrell	1	0	0
Thurlow, G. R.	Stowmarket	1	0	0
Thynne, Lt.-Col. U. O. ..	Muntham Court, Worthing	1	0	0
Tidswell, R. J.	Haresfield Court, Stonehouse, Glos.	1	0	0
Till, J. B.	Mangotsfield, near Bristol	1	0	0
Tillard, Rear-Admiral P. F... ..	Alford House, Castle Cary	1	0	0
Tilley, T. H.	Manor Farm, Biddisham, Axbridge	1	0	0
Tinsley, C. H.	Twyford, Pembrige, R.S.O., Herefordshire	1	0	0
Tipper, B. C. and Son	Balsall Heath, Birmingham	1	0	0
Titt, J. W.	Implement Works, Warminster..	1	0	0
Tolley, W. H.	Pitt Farm, Culmstock, Devon ..	1	0	0
Toogood, E. K.	Messrs. Toogood & Sons, Southampton	1	0	0
Tory, R.	Charisworth, Blandford	1	0	0
Tory, R. N.	Anderson, Blandford, Dorset	1	0	0
Trafford, G. R.	Hill Court, Ross, Herefordshire ..	1	1	0
*Tredegar, Lord	Tredegar Park, Newport, Mon... ..	2	2	0
Treffry, I. de C.	Penarwyn, Par Station	1	1	0
Treffry, Mrs. I. de C.	Penarwyn, Par Station, Cornwall	1	0	0
Tregonning, Capt. C. N. ..	Bryn Hafod, Llanelly	1	0	0
†Tremaine, W. H.	Sherborne, Northleach, Glos. ..	..	..	..
Tremayne, Col. W. F.	Carclews, Perran ar Worthal, Truro	1	1	0
Treowen, Lord	Llanarth Court, Raglan, Mon. ..	1	0	0
Trevethan, W.	Brondstone Hill, Chipping Norton	1	0	0
Trevilian, Major M.	Curry Rivel, Taunton	1	0	0
Trotman, A. W.	Langston Court, near Newport, Mon.	1	0	0
Trotter, Miss	Chatley, Norton St. Philip, Bath	1	1	0
Troup, Lieut.-Col. Alan G., D.S.O.	Knighton, Broadchalke, Salisbury	1	0	0
Trump, W.	Borough Farm, Broadclyst, Exeter	1	0	0

Name	Residence	Subscriptions		
		£	s.	d.
Tucker, Miss E.	Tamar House, Crapstone, Yelverton, S. Devon	1	0	0
Tucker, M. & Sons	Broad Quay, Bath	1	0	0
†Tudway, C. C.	The Cedars, Wells, Somerset . . . . .	..	..	..
Tudway, Lieut. L. C. P., D.S.O.	Milton Lodge, Wells	1	0	0
Turnor, Lt.-Col. W. W.	Pinkney Park, Chippenham	1	0	0
Tyley, W. J.	Manor Farm, Rodney Stoke, Wells	1	0	0
Uncles, B.	21, Trowbridge Road, Bradford-on Avon	1	0	0
Unite, John (Ltd.)	291, Edgware Road, London, W.2	1	1	0
Upton, J.	Ashbridge Court, North Tawton, Devon	1	0	0
†Vacher, E. P.	Cowfold Lodge, Cowfold, Sussex	..	..	..
Veitch, Peter C. M.	Exeter	1	0	0
Venning, H. C.	Willetts, Bicknoller, Taunton	1	0	0
†Verulam, Earl of	Gorhambury, St. Albans . . . . .	..	..	..
Vine & Co. (Ltd.)	Cornhill Chambers, Swansea	1	1	0
Vinning, The Rev. H. S.	The Vicarage, Hope-under-Dinmore, Herefordshire	1	0	0
Vivian, C. C.	"Craigside," Langland, near Swansea	1	0	0
Vowles, S. C.	West India House, Baldwin Street, Bristol	1	0	0
Waddell, J., J.P.	Ravelston, Tumble, near Llanelly	1	0	0
Waide, W. and Sons	Churn Works, Leeds	1	0	0
Wainwright, C. Donald	Summerleaze, Shepton Mallet	1	1	0
Waldegrave, Earl	Chewton Priory, Somerset	1	0	0
*Walker, Capt. P. L. E.	Great House, Chipping Sodbury, Glos.	2	0	0
Walker, E. G. F.	The Hollies, Chew Stoke, Bristol	0	10	0
Walker, H.	Cook's Folly, Bristol	1	0	0
†Walker, J.	Knightwick Manor, Worcester . . . . .	..	..	..
Walker, K. Murray	The Wilderness, Woodbridge, Suffolk	1	0	0
Wallace, W. & R.	Knebworth, Herts.	1	0	0
Wallis and Stevens	North Hants Iron Works, Basingstoke	1	0	0
†Walsingham, Lord	Merton Hall, Thetford, Norfolk . . . . .	..	..	..
Ward, J. E.	Red Lodge, Purton, Wilts	1	0	0
Ward, R. B.	Godinton, Ashford, Kent.	1	0	0
Ward, Mrs. L. Bruce	Godinton, Ashford, Kent.	1	0	0
Wardlaw, H. and A.	Holway Farm, Sherborne	1	0	0
†Waring, C. E.	Conservative Club, Cardiff . . . . .	..	..	..

Name	Residence	Subscriptions		
		£	s.	d.
†Warner, Col. Sir Courtenay, Bart., C.B., M.P. . . .	Bretterham Park, Suffolk . . .	..	..	..
Warren, W. C. . . .	Farthing's Farm, Comeytrowe, Taunton . . .	1	0	0
Warren, W. J. . . .	Deacons Farm, Staplegrove, Taunton . . .	1	0	0
Warren & Sons	Corn Merchants, Taunton . . .	1	0	0
Warry, Col. B. . . .	Shapwick, Bridgwater . . .	1	0	9
Waterloo Mills Cake and Warehousing Co. (Ltd.) . .	Wilmington, Hull . . .	1	0	0
Watson, H. R. . . .	Milborne Wick, Milborne Port . .	1	0	0
Watson, Capt. Hon. T. H. . .	Cormiston, Milverton, Somerset . .	1	0	0
Watson, Sir W. G., Bart. . .	Sulhamstead Park, near Reading . .	1	1	0
†Watts, Major E. M. . . .	Eastwood Park, Falfield, Glos. . .	..	..	..
Watts, Mrs. E. . . .	Eastwood Park, Falfield, Glos. . .	1	0	0
*Way, General N. S. . . .	Manor House, Henbury, Bristol . .	2	0	0
Weaver & Co. . . .	Beaufort Warehouses, Swansea . .	1	0	0
Webb, E. and Sons	Wordsley, Stourbridge . . .	1	0	0
Webb, Lieut.-Col. Sir H., Bart.	Castleton, Cardiff . . .	1	0	0
Webb, Major W. Harcourt . .	Hill House, Kinver, Stourbridge . .	1	0	0
Webb, T. J. . . .	Hardwicke Farm, Gloucester . . .	0	10	0
Weech, J. & Sons	Maudlin Street, Bristol . . .	1	0	0
Weeks, E. . . .	Wraxall, Shepton Mallet . . .	1	0	0
Welch-Thornton, H. . . .	Beaurepaire, Basingstoke . . .	1	1	0
Wessex Associated News (Ltd.)	Westgate Street, Bath . . .	1	0	0
West, E. P. . . .	Secretary-Manager, University of Bristol Research Station, Long Ashton, Bristol . . .	1	0	0
Westminster, Duke of . . .	Eaton Hall, Chester . . .	1	1	0
Weston, H. and Sons . . .	The Bounds, Much Marcle, via Dymock, Herefordshire . .	1	0	0
Whatley, Charles W. . . .	Burderop, Swindon . . .	1	0	0
Wherry, E. . . .	Bourne, Lincolnshire . . .	1	0	0
†White, A. R., O.B.E. . . .	Charnage, Mere, Wilts . . .	..	..	..
White, F. . . .	Torweston, Williton . . .	1	0	0
White, J. . . .	Foxhill, Wanborough, Wilts . . .	1	0	0
White, J. H. . . .	Bagborough Farm, Shepton Mallet . .	1	1	0
*†White, Sir G. Stanley, Bart.	Hollywood Towers, near Bristol . .	..	..	..
White, W. . . .	Pigeon House Farm, Bishopsworth Bristol . . .	1	1	0
White, W. J. S. . . .	Zeals Park, Wiltshire . . .	1	0	0
White, Tomkins & Courage (Ltd.)	Liverpool . . .	1	0	0
White, W. & Son	Pool Farm, Taunton . . .	1	0	0
Whitehead, A. . . .	Lydford Park Farm, West Lydford . .	1	0	0
Whitehead, J. . . .	Lower Hill Farm, Butleigh, Glastonbury . . .	1	0	0
Whitley, S. R. . . .	Rookwood, Shinfield, Reading . .	1	0	0

Name	Residence	Subscriptions		
		£	s.	d.
Whitley, W. and H.	Primley Farm, Paignton	1	0	0
Whitting, C. E.	Uphill Grange, Weston-super-Mare	1	1	0
Whyatt, A. L.	Bishopsworth, Bristol	1	0	0
Wickham, C. E.	Palace Farm, Wells	1	0	0
Wigan, E. A.	Conholt Park, Andover	1	1	0
*Wight-Boycott, Capt. Hubert	Oakhampton Manor, Wiveliscombe, Somerset	2	2	0
Wilder, J.	Yield Hall Foundry, Reading	1	1	0
Willcoox, W. H. & Co.	36, Southwark Street, London, S.E.1	1	0	0
Williams, A. M.	Werrington Park, Launceston	1	0	0
Williams, C., M.P.	Greenway, Churston Ferrers, South Devon	1	0	0
Williams, D. D.	Gwynva, Tregaron	1	0	0
Williams, G. L.	Chavenage, Tetbury	1	1	0
Williams, G. P.	Scorrier, Cornwall	1	0	0
Williams, J.	Scorrier House, Scorrier, Cornwall	1	0	0
Williams, J. C., M.P.	Werrington Park, Launceston	1	0	0
†Williams, M. Scott	Woolland House, Blandford			
Williams, O.	Crossways, near Cowbridge, Glam.	1	0	0
Williams, P. D.	Lanarth, St. Keverne	1	1	0
†Williams, Col. Sir Robert, M.P.	Bridehead, Dorchester			
*†Williams, P. F. C.	Glen Side, Leigh Woods, Bristol			
Willis, J. Deane	Bapton Manor, Codford, Wilts	1	1	0
Wills, A. Stanley	21, Royal Crescent, Bath	1	0	0
*Wills, Capt. A. S.	Thornby Hall, Thornby, North- ampton	2	0	0
Wills, Sir Frank	Bristol	1	0	0
Wills, G. A.	Burwalls, Leigh Woods, Bristol	1	0	0
*Wills, W. D. & H. O.	Bedminster, Bristol	2	0	0
Wills, W.	Marlwood, Thornbury, Glos.	1	0	0
Wills, W. Melville	Estate Office, Bracken Hill, Leigh Woods, near Bristol	1	0	0
Willson, Stephen	Canadian Pig Powder Factory, Peterborough	1	0	0
Wilmot, G.	11, Graham Road, Weston-super- Mare	1	0	0
Wilmot, R. M.	British Oil and Cake Mills, Brook- lyn, Sidcup, Kent	1	0	0
Wilson, Dr. T. C.	Hull Manor Shire Stud Farm, Hinton Parva, Swindon	1	0	0
Wilts & Somerset Farmers (Ltd.)	Chippenham	1	1	0
Winstone, S. W.	Twickenham Court, Nailsea, near Bristol	1	0	0
Winter, Major F. J.	Canok Lodge, Walton-by-Cleve- don, Somerset	1	0	0

Name	Residence	Subscriptions		
		£	s.	d.
†Winterton, Earl, M.P.	4, Wilton Street, Grosvenor Place, London, S.W.	..	..	..
Wise, A. G.	Hampton House, Brislington, Bristol	1	1	0
Withers, C.	Glen Mere, Clapton, Portishead..	1	0	0
Withers, J. T.	Faber Farm, Hambrook, near Bristol	1	0	0
Withers, L. H.	Manor Farm, Kimbridge, Rom- sey, Hants	1	0	0
Withers, R.	Caswell Farm, Clapton, Portishead	1	0	0
Withers, R. B.	The Bungalow, Ham Green, near Bristol	1	0	0
Withers, W. R.	Lower Court Farm, Long Ashton, Bristol	1	0	0
Woodcock, Major J., D.S.O.	The Manor, Nether Wallop, Hants	1	0	0
Woodhouse, Lt.-Col. S. H.	Heatherton, Taunton	1	0	0
Wootton, J. H.	Byford, Hereford	1	0	0
Worsley-Worwick, R.	Acton Round, Bridgnorth	1	0	0
Wring, E. J.	338, St. John's Lane, Bedminster, Bristol	1	0	0
Wyatt, J.	Mizzmead Farm, Nailsea, near Bristol	1	0	0
Wyatt, W.	Kingweston, Taunton	1	0	0
Wyld, Col. C. E.	Tile House, Denham, Bucks	1	0	0
†Wynford, Lt.-Col. Lord, D.S.O.	Wynford House, Maiden Newton, Dorchester	..	..	..
Yeo Bros., Paull & Co. (Ltd.)	81, Victoria Street, Bristol	1	1	0
Yorwerth, Capt. T. J.	65, High Street, Cowbridge, Glamorgan	1	0	0
Young, E. A...	Mangotsfield, Bristol	1	0	0
Zacharias, J. & Co.	Oxford	1	0	0

(21)

Total 1224

INDEX,

ABSTRACTS OF TITLE TO LAND, 6

Access to Waste Lands and Commons, 15

Acid Soils, 119, 121

Acquisition of Land Act, 14

—— Arbitrator, Powers, 14

Agricultural Colleges, Exhibits from, 95
—— Research Station, Bristol, 109

—— Advisory Work, 114

Air Ministry and Weather, 34

Allotment Awards, Plymouth, xc

Analyses, Members' Privileges, cxvii

—— of Soils in Orchards, 138

Annual Exhibitions, List of, cxiv

—— General Meeting, 106

—— Report on the Society's Operations, 106

—— Report of Consulting Chemist, 218

Apples, Bark Canker of, 155

—— Blossom Weevil, Miles on, 149

—— Life History, 150

—— Control of, 152

—— Cuttings and Injections, 146

—— Packing Demonstration, 105

—— Trees, Manurial Experiment on, 121

Apples, Varieties of Cider, 55

Arsenate of Lead for Logan Beetles, 184

Art Exhibitions, Society's, 94

Atlantic Air Currents and Climate, 32

Atmosphere and Leaf Scorch, 126

Awards, Plymouth Show, iii

BALLOONS, WEATHER INFORMATION FROM, 33

Bark Canker of Apples, Gilchrist on, 155

—— Method of Infection, 158

Barker, Prof. B. T. P., on West Country Orchards, 45

—— on The National Fruit and Cider Institute, 110

—— on Cider-making, 199

Barometer, Correct reading of, 40

Bastin, S. L., on Modern Weather Forecasting, 30

Bath and West Society and Cider, 47

Black Currant, Manurial Treatment of, 176

—— Reversion Disease, 190

Borough English, 17

Bracken Eradication, Progress report, 71

British Meteorological Office, 32

Bunyard, E. A. and "Journal of Pomology," 111

Butter Test at Plymouth, 88

CANKER CONTROL, S. P. WILTSHIRE ON, 188

Canker Fungus in Fruit Buds, 115

—— and Scab Wounds on Apples, 206

Carbonates and Chlorosis, 166

Cattle Awards, Plymouth, xxi

Central Weather Office, U.S., 32

Chlorosis in Plants, Wallace on, 159

Chocolate Leaf Spot, 117

Cider Apples for Farm Orchards, 53

—— Exhibits at Plymouth, 99

—— Export of, 54

—— Industry, 47 et seq.

—— Making with Dessert Apples, 199

——, 1921-2, Grove on, 208

Clean Milk Production, 103

Cloud Study and Weather Forecasts, 38

Committees, Society's Standing, cxi

Conveyancing Bill, 2

—— Acts, Amendments of, 13

Copyhold Land, 16

Council, Members of, cx

Crowther, Charles, M.A., on Pig Feeding, 57

Crumpler, J., on Dairy Herds Competition, 102

Cundall, H. M., on Nature Study Department, 94

Curtis, on Stimulation of Buds, 145

DAIRY DEPARTMENT AT PLYMOUTH, 81

—— Herds Competition, Plymouth 102

Diastase and Bud Stimulation, 148

Drinkstone Cottages, Repairs, 25

EARTH FLOORS IN COTTAGES, 27

Economy in Cottage Repairs, 23

Egg-Killing Washes, Lees on, 195

English Climate, Variability of, 31

—— Forestry Association, 93

Equitable Interests in Land, 4, 5

FARM ORCHARD SYSTEM, 45, 48 et seq.

—— Distance of Trees, 50

—— Economics of, 51 et seq.

Farmers and Weather Forecasting, 34

Farwell, E. W., on Cider at Plymouth 99

Federation of Women's Institutes, 97

Financial Statements, 1922, clxiii

Fish Meal for Pigs, 66

Forestry Commission, 93

—— Department at Plymouth, 92

Fruit Bud Formation, 140

—— F. Summers on, 145

—— Stimulation of, 145

Fruit Soils, Survey of, 113
 — Trees, Measuring of, 168
 Fungus of Bark Canker, 156
 Fusarium and Bud Rot, 116

GAVELKIND, 17

General Laws, Society's, cv
 Gilchrist, Grace, on Bark Canker of Apples, 155
 Goat Awards, Plymouth, lxiii
 Gooseberries, Manurial Treatment, 173
 Grading and Packing of Apples, 52
 Grafts, Damage by Weevils, 122
 Grass, Effects of on Orchards, 49
 — Orchards, 47 et seq.
 Grazing, Pigs and Sheep compared, 70
 Green Food for Pigs, 69
 Grove, Otto, on Cider Making, 199
 — — — on Cider Making, 1921 2, 208
 — — — on Trial Orchards, 132
 — — — on Vintage Apples, 213
 Grubb, N. H., on Raspberry Nomenclature, 203

HALOS AND WEATHER FORECASTS, 40
 Handicrafts Section at Plymouth, 96
 Herefordshire Pomona, The, 45
 Housing Scheme, 1920, 24
 Hutchinson, H. P., on Willows, 153

IMPROVEMENTS ON LAND, LAW OF, 12, 13
 — of Poor Pastures, Report on, 71
 Injections of Sugars in Cuttings, 146
 Intestacy, Law of, 18, 19

LAND CHARGES REGISTRATION AND SEARCHES ACT, 10

— Registration, 3
 — Transfer Act, 1897, 2, 20
 Law of Property Act, C. B. Marshall on, 1

Leaf Scorch, Physiology of, 123
 Lees, A. H., on Big Bud and Reversion of Black Currants, 190
 — — — on Egg-killing Washes, 195
 Legal Estates in Land, 4, 6, 10
 Lime Sulphur Spray against Weevils, 153
 — — — against Eggs, 197
 Lime-wash on Cottages, 28
 Lipscomb, G., on Forestry Department, 92
 Live Stock Defence Committee, 108
 Local Materials in Cottage Building, 22
 Logan Beetle, Peren on, 184

MANORIAL INCIDENTS IN LAND, 17

— — — Compensation for, 18
 Measuring of Fruit Trees, Wallace on, 168

Marshall, C. B., on Law of Property Act, 1

Membership, Privileges, ciii

— — — Terms of, civ

Members, List of, clxxviii

Middlings for Pigs, 66

Miles, H. W., on Apple Blossom Weevil, 149

Milk and Daries Act, 1915, 108

— as Pig Food, 63

— Recorded Hords, Plymouth, 102

— Tests at Plymouth, 84-87

Milking Competition, Plymouth, 91

Mineral Matter in Pig Food, 60

Ministry of Agriculture, Orchard Survey, 45

— — — Grants, 110

Modern Weather Forecasting, Bastin on, 30

Moon, The, in Relation to Weather, 44

Mortgages in Law of Property Act, 6, 7

Mycological Research, 115

NATIONAL FRUIT AND CIDER INSTITUTE, 98

— — — — Report, 110

Nature Study at Plymouth, 94

Neglect and Repair of Ancient Cottages, Powys on, 22

OFFICERS, SOCIETY'S, cviii

Officials, Society's, Honorary, cxiii

Orchard Survey, 45

— — Soil Analyses, 138

PALM KERNEL MEAL FOR PIGS, 67

Paraffin Spray against Weevils, 153

Passages in Old Cottages, 26

Peren, G. S., on Control of Logan Beetle, 184

— — — on Raspberry Nomenclature, 203

Perpetually Renewable Leases, 18

Perry, Advantages of, 54

Persistency of Weather Types, 42

Phosphoric Acid for Fruit Trees, 171

Pig Awards, Plymouth, lxxv

Pigs, Exercise for, 62

— Feeding, Crowther on, 57

— Feeding of Breeding, 69

— — — General Management of, 61

— — — Rationing of, 64, 65

— — — Suitable Food for, 58, 69

Plymouth Exhibition, Storr on, 77

— Meeting, Judges, i

— — — Prize Awards, iii

— — — Financial Results, clxxvii

Pomology, Journal of, 111

Potash, Effect on Leaf Scorch, 130

Potash for Fruit Trees, 170
 Potato Diseases, Exhibit, 98
 Poultry Awards, Plymouth, xci
 Powys on the Neglect of Ancient Cottages, 22
 President, Election of, 109
 Produce, Awards, Plymouth, lxxxi
 ——— Department, Plymouth, 82
 Proteins in Pigs' Food, 59
 "Purr" Cider, 46

RASPBERRY NOMENCLATURE, 203
 Real Property Law, 2
 Re-grafting Old Orchards, 50
 R.A.C., Cirencester, 109
 Ringing and Fruit-bud Formation, 142
 Root Growth and Leaf Scorch, 124
 Rural District Councils and Cottage Repairs, 24

SEALE-HAYNE COLLEGE EXHIBITS, 97
 Seargeantry, Grand and Petty, 17
 Settlement of Land, 9
 Settled Land Acts, 9, 11, 12
 Sheep Awards, Plymouth, liii
 Show Yard Addresses, 80
 Somerville, A. F., on Dairy Department, 81
 Spraying for Logan Berries, 184
 ——— Canker, 188
 ——— Egg-killing, 195
 Stock Exhibits at Plymouth, 77
 Stone Fruits in Farm Orchards, 49
 Stoddart, J., on Apple Packing, 105
 Storr, F. H., on the Plymouth Exhibition, 77
 ———, Annual Report, 106
 Strawberries, Manual Treatment of, 180
 Summers, F., on Leaf Scorch, 123
 ——— on Fruit Bud Formation, 140, 145
 Swansea Meeting, cxxi

Swansea Meeting, Prizes, cxxiii
 ——— Regulations, cxlvii

TEST DEPARTMENT, DAIRY, AT PLYMOUTH, 90

Tenant for Life, Powers of, 12, 13
 Thunderstorms, 42
 Title to Land, 14
 Tomatoes and Chlorosis, 161
 ———, Sleepy Disease of, 117
 Topography and Weather, 37
 Trial Orchards, 132
 Trustee Acts, 15 et seq.
 Trusts for Sale of Land, 8

UNIVERSITY OF BRISTOL, 98

VEGETABLE MARROWS, DISEASE OF, 117
 Vintage Apples, 1921, Grove on, 213
 Vitamins in Pig Food, 60
 VOELCKER, Dr. J. A., Annual Report, 218

WALLACE, T., ON TRIAL ORCHARDS, 132
 ———, on Chlorosis in Plants, 159
 ———, on Manuring of Fruit Trees, 168

Waste Lands and Commons, Public Rights over, 15
 Water Supply in Cottages, 26
 Weather Forecasts, Daily, 35, 36
 West Country Orchards, Barker on, 45
 Willow Growing, 112
 Willows, H. P. Hutchinson on, 153
 Wiltshire, S. P., on Canker and Scab Wounds on Apples, 206
 ———, on Canker Control, 188
 ———, on Wound Dressings, 189
 ———, 111

Wind and Leaf Scorch, 127
 Wind and Weather Forecasts, 39
 Wireless Information on Weather, 33
 Woolhope Field Club, 45
 Working Dairy, Plymouth, 82, 83
 Wound Dressings for Trees, 189

END OF VOL. XVII.

BATH:

PRINTED BY WILLIAM LEWIS & SON, LTD., 12, NORTH GATE.

BREEDERS' DIRECTORY.

HORSES.

Arab

HOUGH, S. G., SPRINGHOUSE PARK, THEYDON BOIS, ESSEX. Stallions, mares and young stock for sale, including winners at the leading shows and Endurance Tests.

Suffolks.

BAWDSEY HALL STUD. Property of Sir Cuthbert Quilter, Bart. Numerous first and champion prizes. Mares and Stallions for sale. T. A. Crombie, Bawdsey Estate Office, Woodbridge.

PACKARD, HORACE & SONS, SHOTLEY, IPSWICH, SUFFOLK. Suffolk Horses, Mares and Fillies by Sudbourne Beauchief for sale. Station: Ipswich. Telegrams: Shotleygate.

Polo and Riding Ponies.

BRIGHT, HERBERT, THE COVE, SILVERDALE, CARNFORTH. Polo Pony stud, including 'The Marne', first prize stallion 1921 at Islington. Station: Silverdale. Telegrams and telephone: 19 Silverdale, Carnforth.

MASON, F. FITCH, THE FARAAM, KILLAY, GLAMORGANSHIRE. Breeder of prize-winning Welsh Mountain Ponies. Stallion: Grove Grey Dawn (893). Inspection invited. Apply, A. Cooke, Stud Groom.

TAYLOR, C. HOWARD, MIDDLEWOOD HALL, NEAR BAENSLEY. Good young Polo Ponies always for sale, bred from Mares which have been good players and prize-winners; also a few undersized Ponies suitable for India. Polo-bred Stallions: Field-Marshal, Favourite (both sires of winners), Complexion, and St. Omer, all prize winners, and licensed by the Ministry of Agriculture as sound.

Shetland.

DR. BOWIE, PARKHALL, BIXTER, SHETLAND. Shetland Ponies. Prize Pedigree stock. Winner of Special for Best Stallion and two Mares, Lerwick Show, Championship and many other prizes.

CATTLE.

Aberdeen-Angus.

ABERDEEN-ANGUS CATTLE. The Premier Beef Breed. Illustrated pamphlets (various languages) recounting record of supremacy in beef production, on application. Secretary, Aberdeen-Angus Cattle Society, 137, Union Street, Aberdeen.

APETHORPE ABERDEEN-ANGUS HERD, property of Sir Leonard Brassey, Bart., M.P. Consists of well-bred animals of best families. Stock Bulls: Black Knight of Auchterarder (45102), Champion at R.A.S.E. Show, Male Champion, H. & A.S. Show, 1921 and 1922; El Khabir (47880), Champion at English A.A. Association's Show, 1921. Yearling Bulls for sale. A large selection of Crossbred Steers and Heifers suitable for Fat Stock Show purposes. Inquiries to G. G. Macdonald, Apethorpe, Peterborough. Telegrams: Apethorpe. Railway station: King's Cliffe, L. & N.W.R.

REID, A. T., AUCHTERARDER HOUSE, PERTHSHIRE. Breeder of select herd of Aberdeen-Angus Cattle, which includes Ericas, Prides, Georginas, Jilts Miss Burgess and Blackbirds. Stock Bulls used in herd: Prince Eric of Bleaton (38512), Eymar (41558), and Black Idol (45093). For particulars, apply to J. McGilchrist, Manager, Home Farm, Auchterarder.

SCOTT, C. T., BUCKLAND MANOR, BROADWAY, WORCESTERSHIRE. Stock Bulls: Etrurian of Bleaton, Champion Royal and Highland Shows, 1919 and 1920; Proud George, First and Reserve Champion, Royal, 1919; Champion, Bath and West, 1920. Young Bull for sale. Apply, Bay, Manager.

THEAKSTON ABERDEEN-ANGUS HERD. Founded 1883. 100 head registered cattle. All the fashionable families represented. Yearling Bulls and Heifers for sale. Ballindalloch Sires: Owner, A. McIntyre, Theakston, Bedale, Yorkshire.

BREEDERS' DIRECTORY.

CATTLE—continued.

Ayrshire.

CAIGTON HERD.—Over 170 Pedigreed Ayrshires, milk recorded for 14 years. Economical producers with large tests. Enquiry invited.—J. B. Crawford, Caigton, Castle-Douglas.

FERGUSON, WILLIAM, CATLINNS, LOCK-EBBIE, SCOTLAND. Ayrshire Cattle. Winner of first at Royal, 1921, and first Highland Show, 1922. Stock always for sale.

MONTGOMERY, A. W., LESSNESSOCK, OCHILTREE, Ayrshire. Breeder and exporter of choicest strains of Ayrshire Cattle. Animals purchased on commission. Inquiries invited.

PEDIGREE AYRSHIRES.—Milk record prize-winning strains. Free from tuberculosis. Animals from this herd have gained premier honours at leading shows, including first for Bull first for Cow, at Royal Show, 1920; first for Bull, Royal Show, 1922; second for Heifer in-milk, with fifth place in milking trials, Dairy Show, London, 1922. Average milk record over entire herd for ten years, 850 gallons at 3.8 per cent. butter-fat. Inspection and correspondence invited. Houison-Craufurd, Dunlop, Ayrshire.

British Friesians.

HAMELS HERD (MR. E. FURNESS) has always for sale Bull Calves from the best type of heavy milkers. Write F. Drewitt, Hamels Park Farm, Buntingford, Herts.

LEITCH, EARL OF, TESTON, MAIDSTONE. British Friesian Cattle. Valuable show animals and heavy milk yields. Bull calves from the best milkers for sale. J. Milne, Teston, Maidstone.

LORD RAYLEIGH'S TEBLING HERD OF BRITISH FRIESIANS. Noted for milk production. Only specially selected, bull calves reared. Inspection invited. Apply G. M. Strutt, Hatfield Bury, Hatfield Peverel, Essex.

CATTLE—continued.

POOLE, MESSRS. H. & B., LAWFORD HERD OF BRITISH FRIESIANS. Whole herd, Cows and Heifers averaged 10,333lbs. Lawford Orchid, Quality and Nada have each given 100lbs in 24 hours; Orange gave 21,375lbs. in 365 days; Orchid gave 21,760lbs. in 305 days, and was then giving over five gallons daily. Herd Bull, Norton Taurus P.J. Heifers taken for service. Bulls from heavy milkers for sale. Apply, H. Poole, Hill House, Lawford, Essex.

Dexters

JOYCE, REV. WALTER, CHARLES RECTORY, SOUTH MOLTON, DEVON. The Exmoor Herd Pure Dexters. Largest in England. Bulls, Cows, Heifers, home-bred (not dealer). Honours, Royal, Bath and West, Smithfield Cup, etc.

South Devons.

ANTONY SOUTH DEVON HERD, the property of Lieut.-General Sir Reginald Pole-Carew, K.C.B. Pedigree herd of deep-milking cattle, including cows of over 1,000 gallons. Daily milk records kept. Bulls, Cows and Heifers for inspection and sale. Apply, Major C. G. C. Elers, Antony Estate Office, Torpoint, S.O., Cornwall.

HANCOCK, CHARLES, THE MANOR FARM, COTHELSTONE, TAUNTON. Herd of Devon Cattle. Telegrams and Station: Bishop's Lydeard.

Galloways.

PURE BRED GALLOWAY BULLS, COWS, HEIFERS of best strains; also Heifers suitable for breeding. Blue Greys. T. Hope Bell, Morrinton, Dumfries. Station: Stepford.

Guernseys.

HARRIS, ARTHUR C., DONNINGTON MANOR, CHICHESTER. Largest pedigree Guernsey herd in England. Heifers and young Bulls from recorded Cows usually for sale.

BREEDERS' DIRECTORY.

CATTLE—continued.

Herefords.

MASON, F. FITCH, THE FARAAM, KILLAY, GLAMORGANSHIRE. Breeder and Exhibitor of high-class Herefords. Eligible for all records.

THOMPSON, T. R., BIRCHWOOD HALL, NEAR MALVERN, HEREFORDSHIRE. Hampton Court, Leen, Aldersend blood. Prize-winners include: Resolute (35537), Royal Champion, 1920; Research (39894), Hereford Worcester Champion, Royal Reserve Champion 1921. Stock Bull: Aldersend Conqueror (38464). Yearling Bulls by Resolute for sale. Inspection invited.

Jerseys.

HOUGH, S. G., SPRINGHOUSE PARK, THEYDON BOIS, ESSEX. Official milk and butter records kept. Tuberculin tested. Young stock and Down Calvers generally for sale. Speciality: Young Bulls from heavy milking strains, including 1,000 gallons, on both sides.

MRS. HAYES SADLER'S HERD OF PEDIGREE JERSEYS. The combination of the blood of The Cid, La Gloire Cid, Golden Fern's Noble. All descendants of five and six gallon cows. Norsbury, Sutton Scotney, Hants.

WANNERTON JERSEYS. Cows, Heifers, and Young Bulls usually for sale. All passed tuberculin test. Milk records kept. Bulls at present in service: Dappler by The Cid, Italicus by Xenia's Sultan. Apply, A. E. Bond, Wannerton, near Kidderminster.

Kerries.

HILLIARD, JOHN, LAKE HOTEL, KILLARNEY. Famous Castletough Herd of Kerry Cattle. "The herd of the present day." Many recent prizes and championships won, including 1922. Choice animals for sale. Choice non-pedigree Kerries and Dexters for sale; commercial prices.

CATTLE—continued.

IVY HOUSE HERD. Pure Pedigreed Kerry Cattle of type and record prize and prize milking strains. The economic milk producers of the world.—Apply to the Foreman, Ivy House, Newdigate, Surrey.

PALMER, CAPTAIN RICHARD ELLIOTT. The O.P.H. (Registered prefix), Oaklands Park Herd, Newdigate, Surrey. Pure Pedigree, Registered Kerry Cattle, prize-milking, butterfat, record strains, type, breeding. The champion economic milk producer of the World. Apply, The Foreman.

Lincoln Reds.

BRINDLEY, F., Peel, Congleton, Cheshire. Lincoln Red Dairy Shorthorns, Lincoln Longwool Sheep, Middle White Pigs, Utility Buff Rocks. Station: Congleton.

STAPLEFORD PARK HERD OF LINCOLN RED SHORTHORNS. A few young Bulls for sale, from tested milkers. Apply, C. S. Harvey, Wymondham, Oakham.

WEIGALL LT.-COL. SIR A. G. K.C.M.G. "Petwood" WOODHALL SPA LINES. Pedigree Lincoln Red Shorthorns, Dual-purpose Cattle kept. Prizes won: Royal Lines. County Peterborough, Oakham, Boston, Alford, London Dairy Show and Smithfield. Apply, Agent, Estate Office. Station: Stixwold. Telegrams: Woodhall Spa.

Red Polls.

WHITEWAY HERD, the property of Major J. Gordon Dugdale. Young Bulls, sired by Neeton Gloucester, Royal Champion, 1922, for sale. Apply D. Japp, Whiteway Farm, Cirencester.

Shorthorns.

BRASSEY, E. P., MANOR FARM, UPPER SLAUGHTER, GLOS. Pedigree Scotch Shorthorns: Augusta, Rosebud, Brawith Bud, Goldie, and other tribes. Sires used: (1) Balcairn Major (153582) sire, Collynie Golden Sun; dam, Mistletoe 41st

BREEDERS' DIRECTORY.

CATTLE—*continued.*

(dam of Edgcote White Eagle and Edgcote Flatterer). (2) Saltoun Autoerat (175886): sire, Lothian Warrior; dam, Balnakyle Augusta 5th. Winner of Cesare's Junior Champion Cup at Highland Show, 1922.

CHIVERS & SONS, LTD., HISTON, CAMBS. Pedigree Dairy Shorthorns. Over 100 head mainly fashionably bred Bates families. Milk recorded daily and checked by Ministry of Agriculture recorder. Champion Cow, reserve champion Bull, 100-guinea Challenge Cup, R.A.S.E., Derby, 1921, etc. Bulls and Bull calves always for sale.

DALMENY, LORD, MENTMORE, LEIGHTON BUZZARD. Best strain Scottish Shorthorns. Winner first and reserve champion, R.A.S.E. Bulls and Heifers for sale. Apply, Charles Edmunds, Mentmore, Leighton Buzzard. Station: Leighton Buzzard.

DARBY, ALFRED, ADCOTE, SHREWSBURY. Shorthorn Herd of following tribes: Aerne, Brawith Bud, Broadhooks, Butterfly, Clara, Clipper, Cold Cream, Eastthorpe, Dorothy, Groat, Matilda, Missie, Nonpareil, Rosebud, Secret, etc. Bulls and Heifers for sale. Station: Basechurch, G. W. R.

DUTHIE, WILLIAM, COLLYNIE, TARVES, ABERDEENSHIRE. Seventeen miles from Aberdeen. Telegrams and Telephone: Duthie, Tarves. Annual sale, second Tuesday October.

HOBBS, ROBERT W., & SONS, KELMSCOTT, LECHLADE, GLOUCESTERSHIRE. Herd of 500 Dairy Shorthorns. Milk records kept. Numerous prizes won for inspection, milking and butter tests. The Gold Medal, "Spencer" and "Shirley" Challenge Cups have been won at the London Dairy Show. The Fifty-guinea Challenge Cup for the Best Group of Dairy Shorthorns at the Royal Show has been won on six occasions. The Male Championship was won by a Kelmscott-

CATTLE—*continued.*

bred Bull at the Royal Show, 1921, and at the recent Royal Show, the Champion and Reserve Champion Bulls and the winning Heifer in-milk, were all bred at Kelmscott. Bulls and Bull Calves always on sale. Four cross Bull Calves at moderate prices, suitable for non-pedigree dairy herds a speciality. All the cows in milk and the stock bulls have passed the Tuberculin Test. Station: Kelmscott, 2 miles. Telegrams: Hobbs, Lechlade.

SILCOCK, R. & SONS, LTD., POULTON-LE-FYLDE. Pedigree Dairy Shorthorns, one of the premier herds, established over 20 years, combining milk and beef to an unusual degree. Milk records taken daily under the inspection of the Lancashire County Milk Recording Society and the D.S.A. Awarded the Royal Lancashire Agricultural Society's Gold Medal for Merit in 1917. Selected Young Bulls and Bull Calves for Sale. The herd is open for inspection at any time by appointment.

THE EARL OF SANDWICH, HINCHINBROOKE, HUNTINGDON. Pedigree Dairy Shorthorns. Fourth-prize Bull, London Dairy Show, 1922. Telegrams, Huntingdon. Agent, Barkley.

THICKET PRIORY HERD, the property of Lt.-Col. J. A. Dunnington-Jefferson, D.S.O. Bulls of best strains always on sale. Apply to Andrew Moscrop, Thorganby Hall, York.

WELBECK HERD OF PEDIGREE SHORTHORNS, the property of the Duke of Portland. Young Bulls and Heifers for sale from the best strains. Apply, Alex. Galbraith, Welbeck, Worksop.

Sussex.

ESPLEN, SIR JOHN, BART., HARDRES COURT, CANTERBURY. Hardres Herd of Pedigree Sussex Cattle. Inspection invited. Communications to Lieut.-Col. J. H. Allen, Estate Office, Hardres, Canterbury, Kent.

BREEDERS' DIRECTORY.

CATTLE—*continued.*

Welsh Blacks.

HALL GREEN HERD. Noted for hardiness, milk and beef. First butter, first milking trials, Dairy Show. Bulls, Cows, Heifers for sale, including probable Dairy Show and Royal winners. Send postcard for pamphlet. Crompton, Hall Green, Wakefield.

SHEEP.

Cheviots

DODD, MESSRS., RIOCARTON, NEWCASTLETON, SCOTLAND. Winner aged Ram class, Cambridge Royal, 1922. Cheviot sheep all ages for sale.

Oxford Downs.

HOBBS, ROBERT W., & SONS, KELMECOTT, LECHLADE, GLOUCESTERSHIRE. This Flock was established in 1863, and consists of from 1,000 to 1,250 registered Oxfords. Numerous prizes for many years won at the principal shows. Telegrams: Hobbs, Lechlade.

Romney Marsh.

DUNSTER, E. B., MONYPENNY HOUSE, NEAR RYE. Established 1850. Registered Romneys. One of the oldest and best utility flocks in the Marsh. Ram Tegs sold annually in Rye since 1873. Typical Ewes always for sale.

FINN, ARTHUR, WESTBROKE, LYDD, ROMNEY MARSH, KENT.—A purely grazing flock tracing back to 1740 in Romney Marsh. Many prizes for wool and twice First Prize and Reserve for Championship. This season First Prize and the Champion Challenge Cup for the best flock exhibited. Rams and Ewes for sale.

Shropshires.

ATKINS, LIEUT.-COL. E. C., STRETTON HOUSE, STRETTON BASKERVILLE, HINCKLEY. Successor to the late A. S. Berry, Shenstone Hall, Lichfield. This renowned prize-winning

SHEEP—*continued.*

flock of Shropshire Sheep, established over 50 years, has been taken over in its entirety. Sheep from this flock have been shipped all over the world. Ewes and Rams always for sale. Inspection at any time. Station: Hinckley, L. & N.W.R. and Mid. Rly. Apply, Owner.

South Downs

ESPLEN, W. G., WADDON HALL, WALHAM, CANTERBURY. Waddon Flock of Pedigree South Down Sheep. Enquiries to Lieut.-Col. J. H. Allen, Estate Office, Hardres Court, Canterbury.

LUTON HOO (95), property of Lady Ludlow. Established 1870. Highly successful at Royal and leading Shows. 1921 Gold Medal at Royal. Three Challenge Cups, etc., 1922 Gold Medal, Royal Counties.—W. J. Fleet, Estate Office, Luton Hoo, Luton.

PIGS.

Berkshires

MANUDEN HERD OF PEDIGREE BERKSHIRES. Boars and Gilts, bred from prize-winners, for sale. Apply, Gee, Manuden House, Essex. Station: Bishops Stortford.

THICKET PRIORITY HERD, the property of Lieut.-Col. J. A. Dunnington-Jefferson, D.S.O. High-class young Boars and Gilts on sale, all of the celebrated Lunn family. Apply to Andrew Moscrop, Thorganby Hall, York.

Essex.

BRADWELL HERD OF ESSEX PIGS. Yelts and Boars from winning strains for sale. Excellent selection. Moderate prices. C. W. & J. Parker, Bradwell-on-Sea, Essex (Southminster Station, G.E.R.).

HASLETT, WALTER H., THE OAKS, BRESSINGHAM. Breeder of Pedigree Essex Pigs. Royal winners 1922. Boars and Gilts for sale.

BREEDERS' DIRECTORY.

PIGS—continued.

Gloucester Old Spots.

BEHRENS, MISS A. J., RIFPLE HALL, TWYKESBURY. G.O.S. Pigs; litters bred from prize-winners. Boars and Gilts usually for sale. Inspection invited.

CHILWELL, REV. W. V., Kings Bromley Vicarage, Lichfield. Best strains only, chiefly from Royal Champions 1921, 1922.

HOBBS, ROBERT W., AND SONS, KELMSCOTT, LECHLADE, GLOS. Herd founded with the most reliable and fashionable strains. Stock Boar: Dinoford Lawless, purchased for 200 guineas. All sows by Woodstock King 1st and Reserve Champion at Royal Show, Derby. Young Boars and Gilts on sale.

MEDWAY HERD GLOUCESTER OLD SPOT PIGS. Founded from the best herds in the country. Gilts and Boars from prize-winning strains for sale. Robert Langridge, Mill Place, Yalding, Kent.

PERRETT, JOHN HENRY, HILL HOUSE, OLD SODBURY, GLOS. Gloucestershire Old Spots. Boars and Gilts. Prize-winning strains. Station: Chipping Sodbury, Glos.

THE FAIRFIELD HERD OF GLOUCESTER OLD SPOT PIGS. Winners to choose from. Gilts, Boars, Sows. Inspection invited. On the main line of the Shrewsbury and Hereford Railway. J. B. Dowding, Leominster.

Large Blacks.

ALBONE, E. & SONS. Glebe Herd pure Large Blacks. Champions at leading shows, 1922, for males and females. Stock Boar: Tartar President 2nd, sire of Docking Mignonette, sold for 500 gns. "Open range." Boars and Gilts always for sale. Inspection by appointment. Spidlington, Lincoln.

ARDTUR HERD LARGE BLACK PEDIGREE PIGS.—Reared on open-air system. Boars and Gilts for sale. Mrs. Russell-Fergusson, Ardtur, Appin, Argyll.

PIGS—continued.

A FINE HERD of the best-known Pedigree strains, Bassingbourn, Vahan, Lustleigh, Subdourne, Trevisquite, Docking, etc., etc., bred in the open at Sandy Lane Farm (half a mile from Tiddington Station, G.W.R., and less than two hours from Paddington), the Pigs of this magnificent herd are well worth studying. Gilts and Boars at moderate prices. The Haseley Herd of Large Black Pigs, prizewinners from generations of prizewinners. Sixteen awards at 1922 Shows, including Smithfield. Write for particulars or appointment to view to Captain Wilfrid Bruce, C.B.E., Haseley Manor, Wallingford, Oxon.

DOUGLAS HERD OF PEDIGREE LARGE BLACK PIGS. True to type. Specially adapted for export; wonderful results in tropical and sub-tropical countries. Address Proprietor: Loudon MacQueen Douglas, Newpark, West Calder, Midlothian.

EDGE, S. F.—Vahan Herd Pedigree Large Blacks. The biggest and best in the Kingdom. 96 awards at leading Shows last three years. Pigs shipped to all parts of the world. Come and see my cheap open air system. Write for illustrated booklet.—Gallops Homestead, Ditchling, Sussex.

LARGE BLACK PIGS, PEDIGREE, kept on grass. Boars and Gilts, prices reasonable. Pedigree Guernseys, White Turkeys, White Wyandottes sittings and stock birds. Currie, Mayfield, Sussex.

LONG CRENDON HERD LARGE BLACKS. Open-air system. Well-bred Gilts for sale.—G. L. Hawkins, Lopemede, Long Crendon, Thame, Oxon.

LORD BLEDISLOE'S HERD OF LARGE BLACK PIGS from best prize-winning strains; open-air system, very hardy; young Boars and Gilts, moderate prices.—Apply, W. Stacey, Redhill Pig Farm, Lydney, Gloucestershire. Auction Sale, April 24, 1923.

BREEDERS' DIRECTORY.

PIGS—continued.

NORMAN, ARTHUR & SON, HILL VUE, LOLWORTH, CAMBRIDGE. Large Black Pigs. Bred and reared in open. Boars and Gilts always for sale. All bred from best prize-winning blood, including Royal winners. Phone: Madingley 4, Station: Cambridge.

PEARCE, E. W., THE CROSS ROADS, WHITTINGTON, LICHFIELD. Large Black Pigs, Boars and Gilts, descended from Champion Royal winners, for sale. Prices reasonable. Stations: Lichfield City and Trent Valley, two miles.

PICKWELL HERD PEDIGREE LARGE BLACK PIGS. Boars and Gilts, eight weeks old, always for sale. Captain C. W. Hemp, Stairbridge, Bolney, Sussex.

SEDGEHILL HERD of Pedigree Large Black Pigs. Gilts and young Boars of very good breeding for sale. Henry Gates, East Haddon Grange, Northampton.

TATTINGSTONE PEDIGREE LARGE BLACKS. Bred from the leading herds. Gilts of all ages born and reared in the open. Lieut.-Col. Addinsell, Tattingstone Place, Suffolk.

Large Whites

BROWNLOW, RIGHT HONBLE. LORD, BELTON HOUSE, GRANTHAM. Large White Yorkshire Boars and Gilts, finest pedigree strains, for sale.

HIVERS & SONS, LTD., HISTON, CAMBS. Pedigree Large White Pigs. Over 1,000 bred annually. Breeding stock have run of large orchards. Champion Boar, Royal and Highland Shows, 1922, and numerous other successes at leading shows. Young stock always for sale.

JUTHORPE HERD of Pedigree Large Whites, bred on the edge of the bleak Derbyshire Moors. Numerous prizes won, including 1st and Champion Silver Cup for the best pig exhibited at the N.P.B.A. Show

PIGS—continued.

and Sale, Birmingham, 1921. Boars, Gilts and In-pig (Gilts at reasonable prices.—E. A. Crookes, Cutthorpe, Chesterfield, Derbyshire.

GREENALL, SIR GILBERT, BART., C.V.O., WALTON HALL, WARRINGTON. Walton and Worsley Herd Pedigree Large White Pigs. 14 First Prizes and 6 Championships have been awarded at four recent Royal Shows. Inspection and enquiries cordially invited. Apply to The Manager, The Office, Bridge House, Higher-Walton, near Warrington.

HOUGH, S. G., SPRINGHOUSE PARK, THEYDON BOIS, ESSEX. Herd kept on open air grazing system. Young Boars and Gilts always for sale.

KIRBY BEDON HERD PEDIGREE LARGE WHITE PIGS. Grand young Boars and Gilts at moderate prices. Hardy constitution, size, and bone. W. Mitchell, The Vale, Kirby Bedon, Norwich.

PRESTWOOD HERD OF MIDDLE WHITE PIGS, owned by W. B. Hill, Wednesfield, Wolverhampton. Boars and Gilts of choicest breeding from winners at principal shows always on sale. Of hardy constitution; kept out on grass; will thrive anywhere.

Middle Whites

ABBRETON HERD PEDIGREE MIDDLE WHITE PIGS. Best blood; winning strain; choice breeding under natural conditions; Boars and Sows, prolific strain with early maturity. First and breed championship N.P.B.A., Birmingham, 1922. Enquiries and inspection invited. Apply Morgan & Winterson, Abberton, near Pershore.

CHINNECK, W. J., TROBRIDGE, CREDITON. Trobridge Herd Pedigree Middle White Pigs. Boars and Gilts of all ages for sale at reasonable prices from the largest herd of Middle White Pigs in the West of England. Station: Crediton, L. & S.W.R. Telegrams: Chinneck, Crediton.

BREEDERS' DIRECTORY.

PIGS—*continued.*

CHIVERS & SONS, HISTON, CAMBRIDGE. Select Herd of Pedigree Middle Whites. Champion Cup for best Middle White Pig at Royal Show, 1919 and 1920 (won outright). Royal Show Derby, 1921, Champion Boar, 1st and Reserve Champion Sow. Royal Show, Cambridge, 1922, Reserve Champion Boar and Sow. Highland Show, 1922, Champion Boar and Sow, and Gold Medal, best pig in Show. Smithfield Show, 1922, Championship Best Pen in Show, Reserve Champion Single Pig, Breed Cup, 2 Firsts, 1 Second, 1 Third, 2 Reserve.

CLOUGHTON HERD Pedigree Middle Whites (open air system). Prize winners. Carpenter, Wyke House, Cloughton, Yorkshire.

CROPWELL OLD-ESTABLISHED HERD OF CHOICE PEDIGREE MIDDLE WHITES. Prizes won at all the leading Shows. Out winter and summer. Prices always moderate. Cuthbert C. Smith, Cropwell Butler, near Nottinham. Bingham Station (G.N.).

EDGE, S. F.—Albany Herd Pedigree Middle Whites. Born and bred out of doors. Wonderfully prolific and splendid doers. An Albany gilt won Challenge Cup for best pig any breed, South-Eastern Counties Show, 1922. An Albany boar sired Champion Single Pig, Smithfield Show, 1922. Write for illustrated booklet. Gallops Homestead, Ditchling, Sussex.

ESPLEN, SIR JOHN, BART., HARDRES COURT, CANTERBURY. Haidres Herd of Pedigree Middle White Pigs. Enquiries invited. Lieut.-Col. J. H. Allen, Estate Office, Hardres, Canterbury, Kent.

GOLBORNE HERD PEDIGREE MIDDLE WHITES. Some well-bred Boars and Gilts for Sale, with plenty of flat bone and fine shoulders; reared on rape, kale; bred from Hammonds, Wharfedale, Prestwood strains; fed scientifically; inspection invited. John Thompson, 16a, Harvey Lane, Golborne, near Warrington, Lancashire.

PIGS *continued.*

MORPETH HERD (Northumberland) of Middle White Pigs. Winners of 18 tickets and Breed Society's Silver Medal, 1922. Boars, Sows, Gilts and young stock for sale. A. Grix, Hill Head Farm, Whalton, Morpeth.

MRS. HAYES SADLER'S NORSBURY HERD OF PEDIGREE MIDDLE WHITE PIGS. Winners every time shown 1920 and 1921, including second prize Royal Show, 1921; third and fourth prizes and Reserve, Smithfield, 1921. Reserve champion Sows second, third prize and Reserve, Royal Counties; first prize, second prize and Reserve, Royal Show, 1922. Gilts and Boars always for sale. Inspection invited. Norsbury, Sutton Scotney, Hants.

PEEL, MRS. JOHN, PROVER HALL, KNUTSFORD, CHESHIRE. Pigs bred and reared entirely in open. Prize-winning and prize-bred stock for sale.

STAPLEFORD PARK HERD OF MIDDLE WHITE PIGS. A few Gilts and Boars from carefully selected stock. Sired by Royal winners. Apply, C. S. Harvey, Wymondham, Oakham.

TIMWELL HERD of Pedigree Middle White Pigs, from the best strains, reared in the open. W. F. S. Hodgson, Morebath, North Devon.

THE WHARFEDALE HERD OF PEDIGREE MIDDLE WHITE PIGS. Royal Show, Cambridge: Championship and Reserve Championship for best specimen of Breed; Championship for the best animal in female classes; Championship for best animal in male classes. Also won Championships, 1908, 1909, 1910, 1913, 1914, 1915, 1919 and 1921. First Prize for pen of three Gilts at 11 successive Royal Shows. Well-known characteristics of the Herd are true type and fine quality, combined with size and sound constitution. Prompt and careful attention to all enquiries and orders. Prices always reasonable. Apply: Leopold C. Paget, Dept. X, Middlethorpe Hall, York.

BREEDERS' DIRECTORY.

PIGS- continued.

WOOLLEY PARK FARM, LTD., Pedigree Middle White Pigs. Boars and Gilts for Sale. Apply, Secretary, Woolley, Wakefield, Yorkshire.

WYCHWOOD FOREST HERD OF PEDIGREE MIDDLE WHITES. Open-air system. Leading strains. Owner, Captain the Honble. Bertram Mitford, D.S.O., R.N., Swinbrook, Burford, Oxfordshire. Station: Shipton (G.W.R.)

Tamworths.

TAYLOR, C. HOWARD, MIDDLEWOOD HALL, NEAR BARNLEY. This Herd was started over thirty years ago. Healthy young pigs of good shape and colour always for sale.

POULTRY.

Dorkings.

MAJOR, ARTHUR J. Breeder and Exhibitor of Champion Dark and Silver Grey Dorkings, "England's best fowl." Prizes at all shows. Birds exported all over the world. Prices moderate. Arthur J. Major, Ditton, Langley, Bucks.

Buff Orpingtons

BUFF ORPINGTON DUCKS. Breeders requiring stock will find the Buff Orpington Duck Club Year Book (1/6 post free), a reliable guide to the best strains. Apply Miss Gilroy, Hon. Sec., Bridgnorth.

Various.

C. & J. BUCKLEY, SUMMERHILL POULTRY FARM, BASILDON, BILLERICAY, ESSEX. Pedigree utility poultry specialists, White Leghorn and White Wyandottes, Sitting Eggs and Day-old chicks. Prices on application.

HEARNshaw, ROGER FLETCHER, FOX HILL, BURTON JOYCE, NOTTS. Breeder of pedigree laying White Wyandottes and White Leghorns. Also exhibition Black Rosecomb and Scotch Grey Bantams. Birds and Eggs for sale. Send for Price List.

Various- continued.

HOUGH, S. G., SPRINGHOUSE PARK, THEYDON BOIS, ESSEX. Houdan, White Wyandotte, Rhode Island and Buff Orpington Poultry, Buff Orpington and Fawn Runner Ducks, Toulouse Geese and Guinea Fowls.

GOATS.

Anglo-Nubian Swiss.

SKIDMORE, MISS, ASHLEY LEIGH, BOX, WILTS. British Saanen Anglo-Nubian Swiss, Anglo-Toggenburg. Goats, Goatlings and Kids (male and female) for sale. All good milking stock. At stud: Peter of Bashley, and an Imported Saanen Box Station, G.W.R.

DOGS.

Border Terriers.

DODD, MESSRS., RICCARTON, NEWCASTLETON, SCOTLAND. Border Terriers always for sale of the oldest and best blood for working and exhibition. Working a speciality.

MISCELLANEOUS.

KNEPP CASTLE PEDIGREE FARMS, property of Sir Merric R. Burrell, Bt. Best prize-winning strains of dual purpose Red Polls, Percherons, Large Black Pigs, Light Sussex Fowls and White Runner Ducks. Inspection welcomed. Moderate prices. Apply, Estate Office, Knepp Castle, Horsham. Telegrams and Station: West Grinstead.

AUCTIONEER

KITTOW & SONS, J., LAND AGENTS AND AUCTIONEERS, LAUNCESTON, CORNWALL. Branch Office, Callington. Hon. Secs. Launceston Agricultural and Fat Stock Societies.

LINCOLNSHIRE STOCK AUCTIONEERS AND AGENTS. Dickinson & Davy, Agricultural Auctioneers, Valuers and Estate Agents. Specialties: Supervision of Estates, Sales of Properties, Lincoln Red Shorthorns and Longwool Sheep. Markets and sales. Offices: Louth, Brigg and Grimsby.

BREEDERS' DIRECTORY.

AUCTIONEERS—*continued.*

RISDON GERRARD & HOSEGOOD, F.A.I.
WIVELISCOMBE, WILLITON AND MINE-
HEAD, SOMERSET. Official Auction-
eers to the Devon Cattle Breeders'
Society. Large sales of Devon
Cattle and Sheep at their Auction
Marts at Wiveliscombe, Washford
and Williton, and periodical sales at
Raleighs Cross, Brendon Hill, Kings-
brompton, Exeter and Taunton
(Devon Rams). Sales of Pedigree
Devon Cattle at Taunton and
Exeter in February and October.
Full particulars of all sales on appli-
cation. P.O. Telephone: No. 5
Wiveliscombe, No. 3 Williton.

AUCTIONEERS—*continued.*

SHOETHOUSE, A. A., LTD., Meat Sales-
man, City Meat Market, Birmingham.
Telegrams: "Meat, Birmingham."
Telephone: 53 Midland. Regis-
tered Offices: 13, Jamaica Row.
Reference: Lloyds Bank, Ltd.
Appointed Salesman to Birmingham
Cattle Show for upwards of 40 years.

WARD & CHOWEN, F.S.I., F.A.I.,
TAVISTOCK AND OKEHAMPTON,
DEVONSHIRE. Established over a
century. Auctioneers, Surveyors
and Land Agents. Valuation and
Sales of Landed Estates and Col-
lection of Rents.

STAPLEFORD PARK HERD of Middle White Pigs

Sired by Royal Prize Winners.

A few choice Gilts and Boars always
— on Sale at Reasonable Prices —

C. S. HARVEY, Wymondham, OAKHAM.

IMPERIAL HOTELS,

**RUSSELL SQUARE,
LONDON**

7 HOTELS, 2,000 ROOMS

**Bedroom, Fitted H. & C. Water,
Bath and Breakfast,**

From **7/9**

**CENTRAL FOR STATIONS, SHOPS,
THEATRES, MUSEUMS AND TUBES.**

I. A. R. I. 75.

IMPERIAL AGRICULTURAL RESEARCH
INSTITUTE LIBRARY
NEW DELHI.

[illegible]